

SECTION E.1

LEPIDOPTERA OF PLUM BROOK STATION



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For

**Ohio Department of Natural Resources
Division of Natural Areas and Preserves**



The Lepidoptera of the NASA Plum Brook Station

Erie County , Ohio

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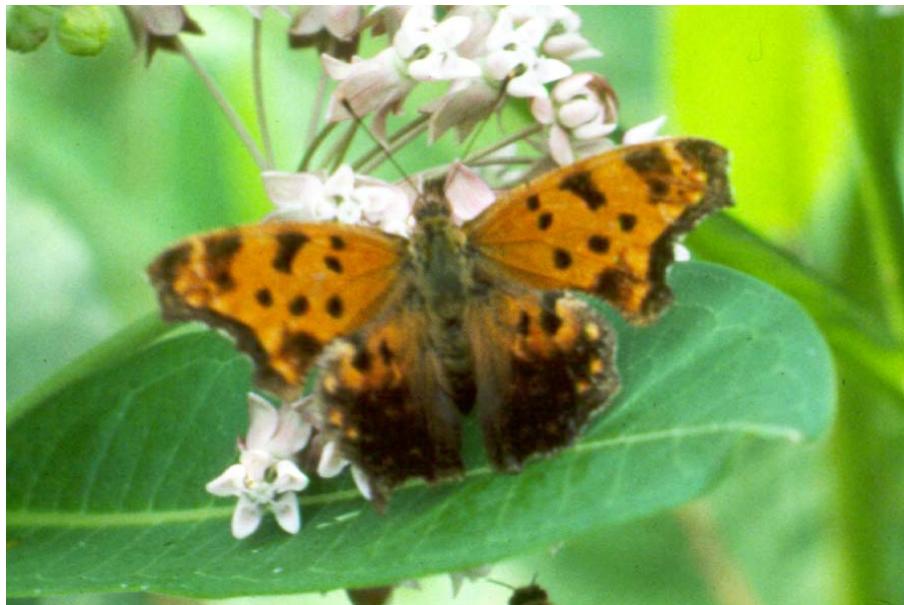
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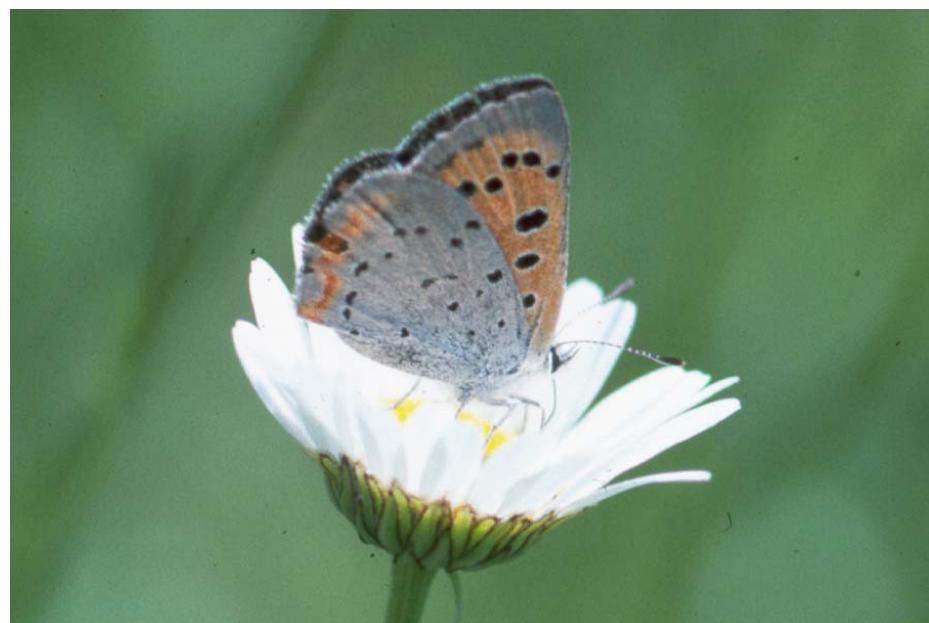
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Part 1:
The Butterflies of the
NASA Plum Brook Station



Butterflies

Introduction:

In a 1994 summer survey of the NASA Plum Brook Station, Sandusky, Ohio 41 species of butterflies were recorded. During this summer 53 species of butterflies were recorded. Three species *Pholisora catullus*, *Satyrium acadica*, and *Nymphalis milberti* observed in 1994 were not seen in 2001. However, fourteen species not recorded in 1994 were found in 2001. These include

* <i>Erynnis juvenalis</i>	* <i>Erynnis horatius</i>	* <i>Hesperia leonardus</i>
<i>Polites origenes</i>	<i>Wallengrenia egeremet</i>	<i>Atrytone logan</i>
<i>Poanes zabulon</i>	<i>Papilio troilus</i>	* <i>Feniseca tarquinius</i>
<i>Lycaena hyllus</i>	* <i>Euptoieta clauda</i>	<i>Asterocampa clyton</i>
* <i>Enodia anthedon</i>	* <i>Satyrodes appalachia</i>	

and according to The Ohio Lepidopterists Data Base the seven species marked with an asterisk had not been reported from Erie County, Ohio prior to this survey.

From the two summer surveys (1994 and 2001) a total of 56 species of butterflies have been found at Plum Brook Station. Also, the number of species recorded from Erie County has increased from 59 to 70.

Survey Methods:

Plum Brook Station was visited almost weekly from 30 April through 23 September. Since it was possible to camp overnight at the Station, generally two days were given to surveying for butterflies on each visit. Almost every section of the station was surveyed for butterflies. Specific sections were visited repeatedly throughout the summer because

- a) They offered a particular habit.
- b) There was a changing flora.
- c) A varied butterfly population was found in this section in 1994.

Using a standard butterfly net, species that could not be readily recognized were caught, identified, and released. In addition, bait traps were hung in six locations throughout the summer. These traps were very successful in providing data on several species of Nymphalidae, Apaturidae, and Satyridae.

Results:

A detailed list of species recorded, sector(s) found in, and relative numbers are given for the 53 different butterflies found by this survey. Often it is very difficult to make an absolute count of butterfly numbers at a given location on a given day. When possible the number of each species actually observed is given but in some cases only

an estimate could be made such as 10+, 15+, or TNTC (Too Numerous To Count). A total of 2251 individual butterflies were actually counted and with the estimates this increases to 3391 individuals not including the fact that many species on some days were TNTC.

For each species the following information is given on pages 21 through 36.

Hodges Number	<i>Genus species</i>	Author
Common Name		
Larva Food Plant		
Larva Image Reference	(If available)	
Adult Image Reference		
Number Observed		
Data (Date,Sector,Number)		

Comments related to each butterfly species observed are given in Table 2. All species are listed according to Superfamily, listed in **BOLD CAPS**, and family, listed in **Bold**.

Following this data section are two maps. The first shows how the Station was divided into sectors and the second map, Figure 1, is a generalized map of the Station showing how each sector was subdivided into subsectors. A checklist, Table 1, shows the days each species was observed during the summer. Dot maps show the sectors and subsectors where each species was observed.

Recommendations:

Many plants growing close to the ground, in open fields, or as ground cover in wooded areas serve as larval food plants for 38 of the butterfly species observed. These plants include among others legumes, sedges, violets, nettles, mallows, milkweeds, and many grasses. Therefore, it is very important these plants be protected. There are many areas rich in each of these food sources throughout the Station. Mowing should be kept to a minimum. Most mowing observed this summer along roads, power lines, or as access lanes were basically acceptable. The mowing of the entire National Guard area at least twice during the summer is not understood. Thankfully, the practice of burning a large portion of the Station each year has stopped! Perhaps some positive results can already be observed from the lack of burning which are

- a) The almost doubling of Skipper species from 10 in 1994 to 17 this summer, 2001.
- b) The American Copper, Meadow Fritillary, and Snout butterflies being observed in more sectors, in greater numbers, and more often throughout this summer than in 1994.

From early spring to late summer there is a continuing change of flowering plants such as Russian Olive, butterfly weed, thistles, Joe-Pye weed, dogbane, milkweeds, and brambles in almost any sector of the Station that offer nectar sources for the adult butterflies. Mowing should be very controlled and burning prevented to protect these adult food sources.

Common milkweed, *Asclepias syriaca*, and whorled milkweed, *Asclepias verticillata*, are both found in many sectors of the Station. The whorled milkweed is much more common around the magazines. Both of these plants are the food plants for Monarch larva and several were found feeding on them this summer. Such large areas of milkweed are rapidly disappearing throughout the country and giving much concern as to the future of the Monarch butterfly. Hopefully every effort will be made to protect these plants at Plum Brook.

Management of the deer population has also added to the protection of the plants and improvement of the butterfly habits in the Station. Perhaps control of the raccoon population might be investigated. Many of these delightful creatures were observed during the day or at dusk along the roads. Over crowding of these little animals can lead to disease problems. If such diseases are distributed to the surrounding community there could be pressure to change Plum Brook!

Fourteen of the butterfly species utilize trees or shrubs such as willows, oaks, hackberry, sassafras, wild cherry, popular, and walnut as larval food plants. Protection of the wooded areas is vital to keep these butterflies at the Station.

Plum Brook Station is one of only a few great butterfly habitats remaining in the state of Ohio. Hopefully, efforts will continue to protect and maintain the entire facility.

Other Butterflies

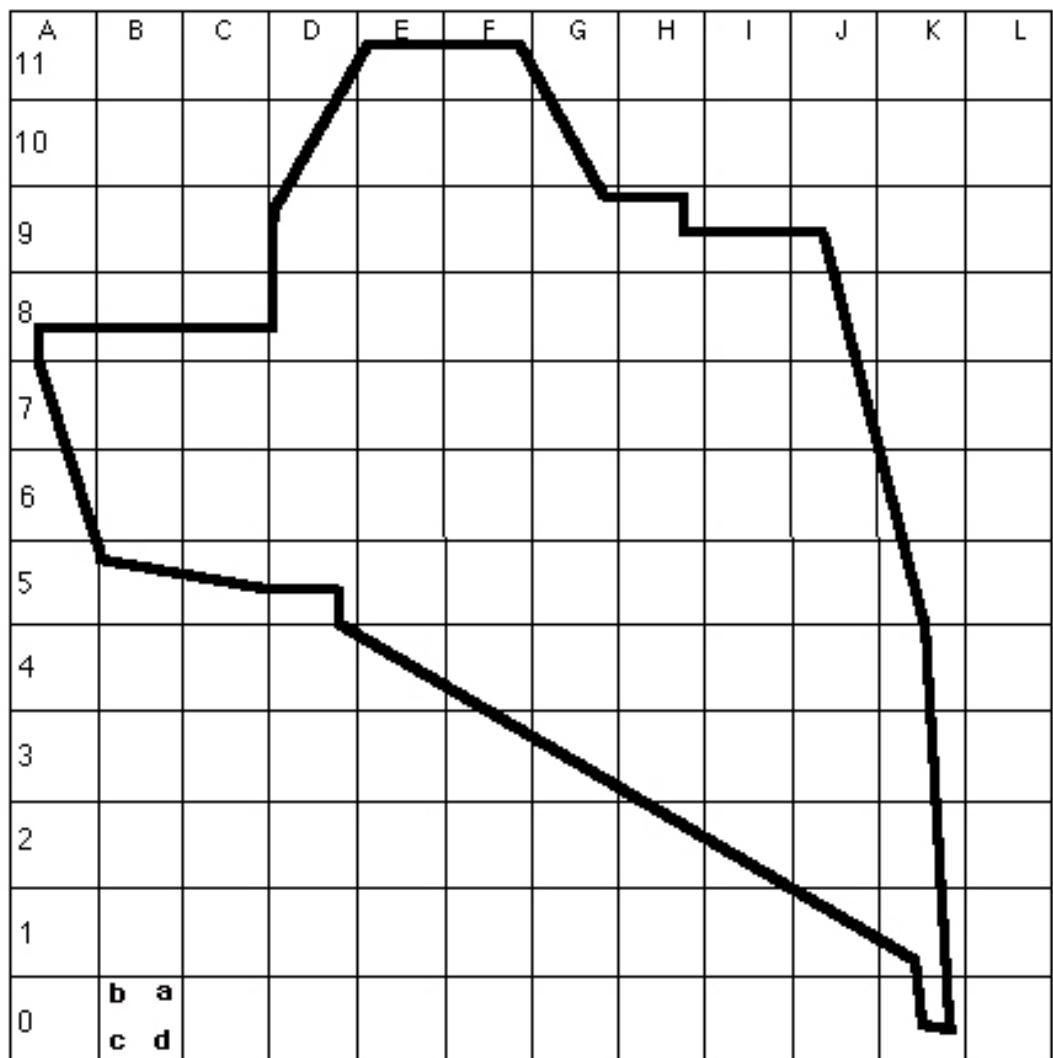
Two species of butterflies that could possibly occur at the Station are the Broad-Winged Skipper, *Poanes viator*, and the Silver-Bordered Fritillary, *Boloria selene*. Several large populations of the threatened lance-leaved violet, *Viola lanceolata*, the larval food plant for the Silver-Bordered Fritillary are found in the Station. One area is in sector G-5-A west of the pond on Snake Road and two more areas are in sectors I-5 and J-5 around the magazines. Many *Boloria* were observed in these areas this summer but they were all the Meadow Fritillary, *Boloria bellona*. Since these habits have existed for many years it seems very possible *B. selene* may be found.

The broad-winged skipper is usually found in sedge meadows or scrubby marshes. Since small areas such as these exist between many magazines and this skipper has been found in Erie County this skipper could be observed at the Station. Future surveys are needed to verify the possible occurrence of these two butterflies.

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**Figure1: Map Showing Coordinate Labeling System
For Sectors and Subsectors**



**Each sector was subdivided into subsectors
as shown in sector B-0 above.**

Table 1: Dates Butterfly Species Were Observed Flying at NASA Plum Brook Station During Summer of 2001

	Apr	May					Jun					Jul					Aug					Sep																	
Genus species	30	1	9	10	19	20	4	5	12	13	18	19	25	26	6	9	10	11	12	19	20	24	25	31	1	7	8	14	15	4	5	11	17	18	22				
Epargyreus clarus			X	X	X	X					X	X	X		X	X	X								X	X		X	X	X			X						
Thorybes bathyllus							X		X		X	X			X																								
Erynnis juvenalis			X	X	X	X																																	
Erynnis horatius																										X			X										
Erynnia baptisiae																X	X			X	X	X						X	X	X	X								
Ancyloxypha numitor							X				X	X	X	X		X									X	X		X	X	X									
Thymelicus lineola									X	X				X																									
Hesperia leonardus																																		X					
Poites coras																										X									X				
Polites themistocles						X					X	X		X																									
Polites origenes											X	X	X		X																								
Wallengrenia egeremet																X	X			X		X																	
Pompeius verna																X	X	X																					
Atrytone logan												X		X	X	X			X																				
Poanes hobomok						X	X	X	X	X	X	X																											
Poanes zabulon			X	X	X	X																																	
Euphyes vestris metacomet																X				X						X													
Papilio polyxenes asterius																X	X				X	X				X	X		X	X				X					
Papilio glaucus	X	X	X	X	X	X					X										X		X	X	X														
Papilio troilus			X	X	X	X											X			X			X		X	X	X	X	X	X	X	X	X						
Pieris rapae	X	X		X		X			X	X		X	X	X	X				X	X		X	X	X	X	X	X	X	X	X	X	X	X	X					
Colias philodice			X									X	X	X					X	X		X	X	X			X			X	X	X							
Colias eurytheme																	X				X							X	X	X	X	X	X						
Eurema lisa lisa											X															X	X	X	X	X	X	X	X						
Feniseca tarquinius																	X																						
Lycena phlaeas americana						X	X	X		X	X	X		X		X	X				X	X									X	X	X	X					
Lycena hyllus																																			X				
Satyrium calanus falacer												X					X																						
Strymon melinus humuli																																					X		
Everes comyntas						X											X						X	X		X	X	X	X	X	X	X	X	X	X				
Celastrina ladon	X																																						
Celastrina neglecta									X		X	X	X	X	X	X	X				X	X	X	X	X	X	X						X	X					
	Apr	May					Jun					Jul					Aug					Sep																	
Genus species	30	1	9	10	19	20	4	5	12	13	18	19	25	26	6	9	10	11	12	19	20	24	25	31	1	7	8	14	15	4	5	11	17	18	22				
Libytheana carinenta bachmanii																																							
Polygonia interrogationis						X	X	X		X	X	X	X		X	X	X	X		X	X					X	X	X	X	X	X	X							
Polygonia comma									X		X	X	X	X		X		X		X			X					X	X	X	X	X	X	X					

Table 1: Dates Butterfly Species Were Observed Flying at NASA Plum Brook Station During Summer of 2001

Nymphalis antiopa	x	x					x	x	x	x	x	x	x	x							x			x	x
Vanessa virginiensis	x	x		x	x	x	x	x	x	x	x	x	x	x											
Vanessa cardui	x	x									x				x		x		x	x	x	x	x	x	
Vanessa atalanta rubria	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Junonia coenia																				x					
Euptoieta claudia																					x				
Speyeria cybele				x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Boloria bellona	x	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Phyciodes tharos		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Limenitis arthemis astyanax	x			x		x	x								x	x	x	x	x	x	x	x	x	x	
Limenitis archippus			x												x	x	x	x	x	x	x	x	x	x	
Asterocampa celtis				x		x	x		x					x		x	x	x	x	x	x	x	x		
Asterocampa clyton									x					x		x	x								
Enodia anthedon						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Satyrodes appalachia							x		x	x				x											
Megisto cymela			x	x	x	x	x	x	x	x	x	x	x	x	x	x									
Cercyonis pegala								x	x	x	x	x	x	x	x	x		x		x	x	x	x		
Danaus plexippus				x	x					x	x			x	x	x	x	x	x	x	x	x	x	x	

Table 2: Comments About Each Species Recorded at Plum Brook Station Summer 2001

Genus species	Comments
<i>Epargyreus clarus</i>	Very common throughout the Station from early May through September. Observed many in sector H-5-B on May 19 in a black locust grove
<i>Thorybes bathyllus</i>	Observed nine individuals over a three week period in sector C-6 which is the abandoned road east of the semicircular road that connects Fox and Taylor Roads and south of the radio tower.
<i>Erynnis juvenalis*</i>	Not found at Station in 1994. First observed on 30 April in sector H-7-A. Males were perching on brambles. Also, found a colony along the pond in the far west area.
<i>Erynnis horatius*</i>	Not found at Station in 1994. Only three individuals found this summer.
<i>Erynnia baptisiae</i>	Observed from early July through early September. One day observed five individuals flying outside my camper which was parked at the main entrance. Found in any area that Crown Vetch was growing.
<i>Ancyloxypha numitor</i>	Very common throughout the Station. Often found in areas between the Magazines and around pond edges.
<i>Thymelicus lineola</i>	Observed this year during the same time period as 1994 in about the same numbers.
<i>Hesperia leonardus*</i>	Not observed in 1994. Only two individuals found 17 September nectaring on a thistle in area I-5-A
<i>Polites coras</i>	Not as common as in 1994. Only two individuals were observed all summer.
<i>Polites themistocles</i>	About 21 individuals observed over a two week period in sectors I-5 and J-5, the Magazine area.
<i>Polites origenes*</i>	Not observed in 1994. Nine individuals observed from mid June to early July in the far west area and the Magazine areas.
<i>Wallengrenia egeremet*</i>	Not observed in 1994. Fairly common in July throughout the Station.
<i>Pompeius verna</i>	/seemed to be more numerous than in 1994. Observed from 6 July to 26 June in several sectors.
<i>Atrytone logan*</i>	Not observed in 1994. Very common from 9 May to 6 July in several sectors mostly on the west side of the Station.
<i>Poanes hobomok</i>	Very common from mid May to mid June.
<i>Poanes zabulon*</i>	Not observed in 1994. Very common from 9 May to 6 July throughout the station.
<i>Euphyes vestris metacomet</i>	Observed the entire month of July in six sectors. Seemed more common than in 1994.
<i>Papilio polyxenes asterius</i>	Found nectaring on thistle, Joe-Pye weed, and wild bergamot from July through September throughout the Station.
<i>Papilio glaucus</i>	Observed flying throughout the Station.
<i>Papilio troilus*</i>	Not observed in 1994. First observed on 9 May behind the Reactor Facility. In early May found nectaring on Russian Olive in sectors C-5 and C-6.

Table 2: Comments About Each Species Recorded at Plum Brook Station Summer 2001

Pieris rapae	Found everywhere in the Station the entire summer.
Colias philodice	Very common from late June through September throughout the Station.
Colias eurytheme	Very common in August and September especially in the Magazine areas.
Eurema lisa	More common than in 1994. Found mostly in the Magazine areas from August through September. A few individuals were observed near the pond on Snake Road.
Feniseca tarquinius*	Not observed in 1994. Only one individual found in the wooded area in sector B-6-D.
Lycaena phlaeas americana	Very common throughout the Station from mid May to late September. More abundant than in 1994.
Lycaena hyllus*	Not observed in 1994. Only one individual observed in sector G-5-A on 17 September.
Satyrium calanus falacer	Only threee individuals observed this summer in only three locations. In 1994 this hairstreak was very abundant throughout the Station nectaring on Dogbane.
Strymon melinus humuli	As in 1994 one individual was found in this summer in about the same sector and same time period.
Everes comyntas	Very common from early July through september in many parts of the Station. On several occassions this little blue butterfly was too numerous to count. Often found in areas of Crown Vetch.
Celastrina ladon	Two individuals observed on 30 April in sector H-7-A.
Celastrina neglecta	Very common and often too numerous to count in many areas of the Station from June to September.
Libytheana carinenta bachmanii	Several more individuals observed this summer than in 1994. Found in several sectors.
Polygonia interrogationis	Very common throught the summer in many sectors of the Station. Many individuals captured in bait traps.
Polygonia comma	More common than in 1994 but this may be because many individuals were captured in bait traps.
Nymphalis antiopa	Many individuals captured in bait traps. Very common throughout the Station.
Vanessa virginiensis	Very common from 30 April through June in many sectors of the Station.
Vanessa cardui	Very common in July , August, and September throughtout the Station.
Vanessa atalanta rubria	Large numbers observed from 30 April through May and still very common the remainder of the summer. The Red admiral was reported in large numbers over the entire state of Ohio this summer.
Junonia coenia	Similar to 1994 only observed two individuals this summer. Both were found near the pond on Snake Road.
Euptoieta claudia*	Not observed in 1994. Found two individuals on 4 September in the open field directly west of the pond on Snake Road.

Table 2: Comments About Each Species Recorded at Plum Brook Station Summer 2001

Speyeria cybele	Very common throughout the Station over the entire summer.
Boloria bellona	Much more common this summer than in 1994. Found in high numbers in many sectors all across the Station.
Phyciodes tharos	A very common butterfly found in any sector of the Station all summer.
Limenitis arthemis astyanax	Again more individuals were observed this summer than in 1994 because of the use of bait traps. Found in wooded areas throughout the Station.
Limenitis archippus	Common from late May through September in many sectors.
Asterocampa celtis	Many observed from mid June to early September. Found where there are hackberry trees. Also, several captured in bait traps.
Asterocampa clyton*	Not observed in 1994. This butterfly was only found in a bait trap in sector H-6-A in July.
Enodia anthedon*	Not observed in 1994. A very common butterfly in wooded areas and often captured in bait traps.
Satyrodes appalachia *	Not observed in 1994. Ten individuals were captured in three bait traps in three wooded areas.
Megisto cymela	Very common throughout the Station from May to mid July.
Cercyonis pegala	Very common in July and August in many sectors, especially in the Magazine areas.
Danaus plexippus	Very common from July through September. The Station has large areas of Whorled Milkweed, <i>Asclepia verticillata</i> , in open fields and between the rows of the Magazines. Several monarch larva were found feeding on this plant. Larva were also found feeding on common milkweed, <i>Asclepias syriaca</i> .
Species marked with an asterisk (*) recorded for the first time at the Station this summer, 2001	

HESPERIOIDEA Hesperiidae The SkippersHodges No. **03870** *Epargyreus clarus* (Cramer, 1779)

Common Name Silver-spotted Skipper

Food Black locust, honey-locust, and hog-peanut

Larva Image Allen (1997) Pl. 39

Adult Image Iftner (1992) Pl. 8 , Allen (1997) Pl. 24

Number Observed 50

Data	7-Aug	B-7-A	2	10-Jul	G-5-D	1	19-Jun	B-7-B	1	20-May	C-6-A	2
	14-Aug	I-5-A	6	19-Jul	C-6-C	1	25-Jun	G-4-D	3	4-Sep	G-5-A	1
	14-Aug	I-5-B	3	19-Jul	D-5-A	1	26-Jun	G-3-B	2	5-Sep	B-7-A	1
	6-Jul	B-6-D	1	24-Jul	H-4-A	1	9-May	B-7-B	1	11-Sep	D-9-D	1
	6-Jul	B-7-B	1	18-Jun	C-5-B	2	10-May	B-7-B	4	22-Sep	J-7-C	1
	9-Jul	J-3-A	1	18-Jun	C-6-D	1	19-May	H-5-B	12			

Hodges No. **03909** *Thorybes bathyllus* (J. E. Smith, 1797)

Common Name Southern Cloudy Wing

Food Tick-trefoil, bush-clovers

Larva Image Allen (1997) Pl. 40

Adult Image Iftner (1992) Pl. 8, Allen (1997) Pl. 24

Number Observed 11

Data	6-Jul	C-6-A	1	12-Jun	C-6-A	2	19-Jun	C-6-D	1
	4-Jun	C-6-B	1	18-Jun	C-6-D	4	19-Jun	I-5-A	2

Hodges No. **03947** *Erynnis juvenalis* (Fabricius, 1793)

Common Name Juvenal's Dusky Wing

Food Oak

Larva Image Allen (1997) Pl. 40

Adult Image Iftner (1992) Pl. 9, Allen (1997) Pl. 25

Number Observed 22

Data	30-Apr	C-6-C	1	9-May	B-7-B	4	10-May	B-7-B	2	19-May	C-6-A	2
	30-Apr	H-7-A	3	9-May	B-8-C	1	10-May	B-8-C	1	19-May	F-10-B	1
	1-May	H-7-A	1	9-May	F-10-B	1	19-May	B-7-B	1	20-May	J-5-B	1
	9-May	A-8-D	2	10-May	B-6-D	1						

Hodges No. **03952** *Erynnis horatius* (Scudder & Burgess, 1870)

Common Name Horace's Dusky Wing

Food Oaks

Larva Image Allen (1997) Pl. 40

Adult Image Iftner (1992) Pl. 9, Allen (1997) Pl. 25

Number Observed 3

Data	14-Aug	I-5-A	2	31-Jul	I-5-B	1
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Hodges No.	03959	<i>Erynnis</i>	<i>baptisiae</i>	(Forbes, 1936)								
Common Name	Wild Indigo Dusky Wing											
Food	Crown vetch, wild indigo											
Larva Image	Allen (1997) Pl. 41											
Adult Image	Iftner (1992) Pl. 9, Allen (1997) Pl. 26											
Number Observed	18											
Data	9-Jul 10-Jul 19-Jul	H-6-A H-9-C G-5-D	1 5 1	19-Jul 19-Jul 20-Jul	H-6-A I-6-A J-6-B	1 1 1	24-Jul 4-Sep	H-5-B G-5-A	1 2	4-Sep 4-Sep	H-5-B H-9-D	3 2
Hodges No.	04004	<i>Ancyloxypha</i>	<i>numitor</i>	(Fabricius, 1793)								
Common Name	Least Skipper											
Food	Grasses, corn											
Larva Image	Allen (1997) Pl. 41											
Adult Image	Iftner (1992) Pl. 10, Allen (1997) Pl. 27											
Number Observed	70+											
Data	1-Aug 14-Aug 14-Aug 14-Aug 15-Aug	H-5-B I-2-B I-5-A J-6-B G-7-C	10+ 3 1 14 1	9-Jul 9-Jul 9-Jul 31-Jul 31-Jul	B-7-B I-6-A J-4-B I-5-D J-5-D	1 1 1 1 1	31-Jul 12-Jun 19-Jun 19-Jun 19-Jun	J-6-B B-7-B I-5-A J-4-C J-4-D	6 1 6 1 3	25-Jun 26-Jun 26-Jun 4-Sep	I-5-D I-5-A I-5-D J-6-B	10+ 1 1 5
Hodges No.	04012	<i>Thymelicus</i>	<i>lineola</i>	(Ochsenheimer, 1808)								
Common Name	European Skipper											
Food	Timothy, grasses											
Larva Image	Allen (1997) Pl. 41											
Adult Image	Iftner (1992) Pl. 10, Allen (1997) Pl. 27											
Number Observed	6											
Data	6-Jul 18-Jun	C-6-A H-8-C	1 1	18-Jun	I-2-A	3	19-Jun	B-7-B	1			
Hodges No.	04023	<i>Hesperia</i>	<i>leonardus</i>	Harris, 1862								
Common Name	Leonard's Skipper											
Food	Grasses											
Larva Image												
Adult Image	Iftner (1992) Pl. 10, Allen (1997) Pl. 27											
Number Observed	2											
Data	17-Sep	I-5-A	2									

Hodges No.	04036	<i>Polites</i>	<i>peckius</i>	(Cramer, 1775)		
Common Name	Peck's Skipper					
Food	Grasses					
Larva Image	Allen (1997) Pl. 42					
Adult Image	Iftner (1992) Pl. 11					
Number Observed	2					
Data	7-Aug	I-2-C	1	22-Sep J-9-C 1		
Hodges No.	04041	<i>Polites</i>	<i>themistocles</i>	(Latreille, 1824)		
Common Name	Tawny-edged Skipper					
Food	Grasses					
Larva Image	Allen (1997) Pl. 42					
Adult Image	Iftner (1992) Pl. 11, Allen (1997) Pl. 28					
Number Observed	22					
Data	18-Jun	I-5-A	1	19-Jun I-5-A 3	20-May B-6-A 1	
	18-Jun	J-5-A	1	26-Jun I-5-A 16		
Hodges No.	04042	<i>Polites</i>	<i>origenes</i>	(Fabricius, 1793)		
Common Name	Cross Line Skipper					
Food	Purple-top, little bluestem					
Larva Image	Allen (1997) Pl. 42					
Adult Image	Iftner (1992) Pl. 11					
Number Observed	9					
Data	6-Jul	C-6-A	1	18-Jun I-5-A1	19-Jun I-5-A 3	25-Jun I-5-D 3
	18-Jun	C-5-A	1			
Hodges No.	04047	<i>Wallengrenia</i>	<i>egeremet</i>	(Scudder, 1864)		
Common Name	Northern Broken Dash					
Food	Grasses					
Larva Image						
Adult Image	Iftner (1992) Pl. 11, Allen (1997) Pl. 28					
Number Observed	25					
Data	6-Jul	B-7-B	2	6-Jul E-5-D 1	9-Jul B-7-B 1	19-Jul C-6-C 6
	6-Jul	C-5-A	2	6-Jul G-3-B 1	9-Jul J-3-A 3	24-Jul I-7-D 1
	6-Jul	C-6-A	4	6-Jul H-4-A 1	19-Jul B-6-D 3	

Hodges No.	04048	<i>Pompeius</i>	<i>verna</i>	(W. H. Edwards, 1862)					
Common Name	Little Glassy Wing								
Food	Grasses								
Larva Image									
Adult Image	Iftner (1992) Pl. 11, Allen (1997) Pl. 28								
Number Observed	10								
Data	6-Jul 6-Jul	B-7-B 2 C-6-B 1	6-Jul 9-Jul	C-6-D 1 C-7-D 1	9-Jul 9-Jul	G-5-D 1 J-3-B 2	26-Jun 26-Jun	G-3-A 1 I-5-A 1	
Hodges No.	04051	<i>Atrytone</i>	<i>logan</i>	(W. H. Edwards, 1863)					
Common Name	Delaware Skipper								
Food	Grasses								
Larva Image									
Adult Image	Iftner (1992) Pl. 12, Allen (1997) Pl. 29								
Number Observed	37								
Data	6-Jul 6-Jul 6-Jul 6-Jul 6-Jul	B-6-A 3 B-6-B 1 B-7-B 1 C-5-A 1 C-6-A 7	6-Jul 6-Jul 6-Jul 6-Jul 9-Jul	C-6-D 2 E-5-D 2 G-4-D 1 H-5-D 1 B-7-B 3	9-Jul 9-Jul 9-Jul 9-Jul 9-Jul	C-6-B 2 J-3-A 3 J-3-B 1 J-4-A 1 J-4-B 2	9-Jul 10-Jul 10-Jul 19-Jul 25-Jun	J-4-D 1 B-6-D 1 G-5-D 2 B-6-D 1 C-6-B 1	
Hodges No.	04059	<i>Poanes</i>	<i>hobomok</i>	(Harris, 1862)					
Common Name	Northern Golden Skipper								
Food	Grases, panic grass, bluegrass								
Larva Image	Allen (1997) Pl. 42								
Adult Image	Iftner (1992) Pl. 12, Allen (1997) Pl. 29								
Number Observed	62+								
Data	4-Jun 4-Jun 4-Jun 5-Jun	B-6-A 4 C-6-A 6 J-5-B 1 J-5-D 1	5-Jun 12-Jun 12-Jun 12-Jun	K-5-C 5 C-6-B 3 H-6-B 1 J-5-A 1	13-Jun 19-May 20-May 20-May	C-6-B 1 C-6-C 10+ B-6-A 4 C-5-B 2	20-May 20-May 20-May 20-May	C-6-A 3 J-5-B 10+ J-6-C 10+	
Hodges No.	04060	<i>Poanes</i>	<i>zabulon</i>	(Boisduval & LeConte, 1834)					
Common Name	Southern Golden Skipper								
Food	Grasses								
Larva Image	Allen (1997) Pl. 43								
Adult Image	Iftner (1992) Pl. 12, Allen (1997) Pl. 29								
Number Observed	53+								
Data	9-May 10-May 19-May	F-10-B 2 B-6-D 1 B-7-B 2	19-May 19-May 20-May	C-5-B 7 F-10-B 4 B-6-A 5	20-May 20-May 20-May	C-6-A 10+ J-5-B 10+	20-May 6-Jul	J-6-C 10+ B-7-B 2	

Hodges No.	04078	<i>Euphyes</i>	<i>vestris metacomet</i>	(Harris, 1862)								
Common Name	Dun Skipper											
Food	Sedges											
Larva Image	Allen (1997) Pl. 43											
Adult Image	Iftner (1992) Pl. 13, Allen (1997) Pl. 30											
Number Observed	15											
Data	6-Jul 19-Jul	B-7-B B-7-B	2 3	19-Jul 19-Jul	C-6-B D-5-A	2 2	19-Jul 31-Jul	D-5-A G-10-B	2 2	31-Jul 31-Jul	I-5-B J-5-D	1 1
PAPILIONOIDEA	Papilionidae		The Swallowtails									
Hodges No.	04159	<i>Papilio</i>	<i>polyxenes</i>	(Stoll, 1782)								
Common Name	Black Swallowtail											
Food	Carrot, parsley, celery, wild parsnip, dill, angelica, cocomos											
Larva Image	Mitchell/Zim (1987) p. 23, Opler (1984) Pl. 1 (1)											
Adult Image	Iftner (1992) Pl. 14											
Number Observed	11											
Data	7-Aug 7-Aug 15-Aug	A-6-D B-7-A G-5-A	1 1 1	6-Jul 10-Jul 24-Jul	B-6-A J-4-B C-7-D	1 1 2	31-Jul 31-Jul	D-8-B I-5-D	2 1	4-Sep 22-Sep	G-5-A J-9-C	1 1
Hodges No.	04176	<i>Papilio</i>	<i>glaucus</i>	Linnaeus, 1758								
Common Name	Tiger Swallowtail											
Food	Wild cherry, sassafras, tulip tree											
Larva Image	Opler (1992) Pl. 2 (5,6)											
Adult Image	Iftner (1992) Pl. 15, Pl. 16, Opler (1984) Pl. 3 (16-18)											
Number Observed	24											
Data	30-Apr 7-Aug 19-Jul 19-Jul 19-Jul 19-Jul	H-7-A G-9-D B-6-D C-6-C D-5-B H-6-A	1 1 1 1 1 1	19-Jul 25-Jul 31-Jul 18-Jun 1-May 9-May	I-6-A H-5-B I-6-A I-5-A G-4-D B-7-B	1 1 1 1 1 1	9-May 10-May 19-May 19-May 19-May 9-May	E-10-A J-6-B C-5-B C-6-C H-6-B B-7-B	1 1 2 2 1 1	19-May 20-May 20-May 20-May 20-May 20-May	H-7-A B-6-B C-6-A H-4-C J-5-B	1 1 1 1 1
Hodges No.	04181	<i>Papilio</i>	<i>troilus</i>	Linnaeus, 1758								
Common Name	Spicebush Swallowtail											
Food	Spicebush, sassafras											
Larva Image	Mitchell/Zim (1987) p. 26, Opler (1992) Pl. 2 (1,2)											
Adult Image	Iftner (1992) Pl. 16, Opler (1984) Pl. 4 (21-24)											
Number Observed	40											
Data	7-Aug 14-Aug 9-Jul 19-Jul 31-Jul	B-7-A I-5-A I-6-A F-10-B I-5-B1	2 1 1 1 1	31-Jul 31-Jul 31-Jul 9-May 10-May	I-5-D J-5-D J-6-B F-10-B B-7-B	2 3 1 2 10	10-May 19-May 19-May 19-May 19-May	C-6-C B-7-B C-5-B C-6-A F-10-B	4 1 1 1 1	20-May 20-May 20-May 4-Sep 11-Sep	C-5-B C-6-A J-5-B E-11-D E-10-A	2 1 2 1 2

Pieridae Whites and Sulfurs

Hodges No.	04197	<i>Pieris</i>	<i>rapae</i>	(Linnaeus, 1758)
Common Name	European Cabbage White			
Food	Mustards			
Larva Image	Allen (1997) Pl. 31			
Adult Image	Iftner (1992) Pl. 17, Allen (1997) Pl. 4			

Number Observed **Too Numberous to Count (TNTC)**

Data	30-Apr	H-6-A	15+	6-Jul	B-7-B	5	19-Jul	G-5-D	4	31-Jul	J-8-D	10+
	30-Apr	H-9-C	1	6-Jul	C-5-A	8	19-Jul	H-6-A	3	12-Jun	J-2-A	1
	1-Aug	H-6-B	4	6-Jul	C-6-A	3	24-Jul	G-5-D	4	18-Jun	C-6-D	10+
	7-Aug	B-7-A	TNTC	6-Jul	G-3-B	5	24-Jul	H-4-A	5	18-Jun	H-8-C	10+
	7-Aug	C-6-D	TNTC	9-Jul	B-7-B	2	24-Jul	I-6-A	2	18-Jun	I-5-A	4
	7-Aug	I-2-C	10+	9-Jul	H-6-D	2	31-Jul	F-7-D	TNTC	18-Jun	I-6-D	4
	14-Aug	I-5-A	6	19-Jul	C-6-B	1	31-Jul	G-10-B	TNTC	25-Jun	G-4-D	10+
	14-Aug	I-5-B	4	19-Jul	C-6-C	6	31-Jul	I-5-B	4	26-Jun	I-5-A	10+
	14-Aug	J-5-B	1	19-Jul	C-6-C	3	31-Jul	J-5-D	10+	1-May	G-4-D	15+
	6-Jul	B-6-A	2	19-Jul	D-5-A	2	31-Jul	J-6-B	10+	22-Sep	J-6-B	6
	1-May	H-7-A	15+	17-Sep	I-5-A	TNTC	4-Sep	J-6-B	5	22-Sep	J-7-C	TNTC
	10-May	J-6-B	2	17-Sep	I-5-D	TNTC	5-Sep	B-7-A	TNTC	22-Sep	J-9-C	TNTC
	20-May	C-5-A	2	22-Sep	J-5-A	10+	11-Sep	E-10-A	TNTC	17-Sep	G-5-A	TNTC
	20-May	C-6-A	1	22-Sep	J-5-B	1	11-Sep	G-5-A	3	4-Sep	G-5-A	7

Hodges No. **04209** *Colias* *philodice* Godart, 1819

Common Name	Clouded Sulphur			
Food	Clover			
Larva Image	Allen (1997) Pl. 32			
Adult Image	Iftner (1992) Pl. 18, Allen (1997) Pl. 5			

Number Observed **38**

Data	1-Aug	H-6-B	2	19-Jul	C-6-C	1	25-Jun	I-5-D	1	17-Sep	I-5-A	1
	7-Aug	I-2-C	1	24-Jul	H-4-A	2	26-Jun	I-5-D	1	22-Sep	J-5-B	1
	15-Aug	H-5-B	2	31-Jul	F-7-D	3	9-May	B-8-C	1	22-Sep	J-7-C	3
	6-Jul	C-6-D	2	31-Jul	G-10-B	2	11-Sep	G-5-A	6	22-Sep	J-9-C	3
	6-Jul	H-5-D	2	31-Jul	J-8-D	1	17-Sep	G-5-A	3			

Hodges No. **04210** *Colias* *eurytheme* Boisduval, 1852

Common Name	Alfalfa Butterfly			
Food	Alfalfa, yellow hop clover			
Larva Image	Allen (1997) Pl. 32			
Adult Image	Iftner (1992) Pl. 18, Allen (1997) Pl. 5			

Number Observed **TNTC**

Data	14-Aug	I-5-A	1	24-Jul	H-5-B	1	17-Sep	G-5-A	8	22-Sep	J-5-B	1
	15-Aug	G-7-C	3	24-Jul	I-7-D	1	17-Sep	I-5-A	2	22-Sep	J-6-B	6
	15-Aug	H-5-B	2	4-Sep	G-5-A	8	17-Sep	I-5-D	3	22-Sep	J-7-C	10+
	10-Jul	B-6-D	6	5-Sep	B-7-A	3	17-Sep	I-6-D	2	22-Sep	J-9-C	TNTC
				11-Sep	E-10-A	2	22-Sep	J-5-A	3			

Hodges No. **04237** *Eurema lisa* (Boisduval & LeConte, 1829)

Common Name Little Sulphur

Food Partridge-pea, senna, clovers

Larva Image Allen (1997) Pl. 32

Adult Image Iftner (1992) Pl. 20, Allen (1997) Pl. 6

Number Observed 30

Data	14-Aug	H-6-A	2	15-Aug	H-5-B	1	4-Sep	J-6-B	1	17-Sep	I-5-D	4
	14-Aug	I-5-A	2	31-Jul	I-5-B	2	11-Sep	G-5-A	1	22-Sep	J-5-A	1
	14-Aug	I-5-B	6	19-Jun	I-5-A	1	17-Sep	G-5-A	1	22-Sep	J-5-B	1
	14-Aug	J-5-B	4	4-Sep	G-5-A	1	17-Sep	I-5-A	2			

Lycaenidae Coopers, Blues and Hairstreaks

Hodges No. **04249** *Feniseca tarquinius* (Fabricius, 1793)

Common Name Harvester

Food Woolly aphids

Larva Image Allen (1997) Pl. 32

Adult Image Iftner (1992) Pl. 21, Allen (1997) Pl. 7

Number Observed 1

Data 6-Jul B-6-D 1

Hodges No. **04251 a** *Lycaena phlaeas americana* Harris, 1862

Common Name American Copper

Food Sheep sorrel, mountain sorrel, curly dock

Larva Image Allen (1997) Pl. 33

Adult Image Iftner (1992) Pl. 21, Allen (1997) Pl. 7

Number Observed 55

Data	6-Jul	C-6-A	5	24-Jul	H-4-A	1	12-Jun	J-3-D	2	20-May	C-6-A	4
	6-Jul	I-6-A	1	24-Jul	I-6-A	1	13-Jun	C-6-D	1	4-Sep	D-6-B	1
	9-Jul	C-6-B	4	4-Jun	G-5-D	1	18-Jun	I-5-A	1	11-Sep	G-5-A	1
	19-Jul	B-6-D	1	4-Jun	J-5-B	1	25-Jun	C-6-A	1	17-Sep	G-5-A	8
	19-Jul	I-6-A	2	4-Jun	J-6-C	5	19-May	C-5-B	1	17-Sep	I-5-A	5
				12-Jun	J-3-C	4	19-May	C-6-A	2	22-Sep	J-5-A	2

Hodges No. **04256** *Lycaena hyllus* (Cramer, 1775)

Common Name Bronze Copper

Food Dock, knotweeds, water smartweed

Larva Image Allen (1997) Pl. 33

Adult Image Iftner (1992) Pl. 21, Allen (1997) Pl. 7

Number Observed 1

Data 17-Sep G-5-A 1

Hodges No.	04282	<i>Satyrium</i>	<i>calanus</i>	(Godart, 1824)	
Common Name	Banded Hairstreak				
Food	Oak, walnut, hickory				
Larva Image	Allen (1997) Pl. 33				
Adult Image	Iftner (1992) Pl. 22, Allen (1997) Pl. 8				
Number Observed	3				
Data	9-Jul	B-7-B 1	9-Jul G-5-D 1	25-Jun G-4-D 1	
Hodges No.	04336	<i>Strymon</i>	<i>melinus humuli</i>	(Harris, 1841)	
Common Name	Gray Hairstreak				
Food	Senns, peas, legumes, mallows, rose family				
Larva Image	Allen (1997) Pl. 3				
Adult Image	Iftner (1992) Pl. 24, Allen (1997) Pl. 10				
Number Observed	1				
Data	14-Aug	I-6-D 1			
Hodges No.	04361	<i>Everes</i>	<i>comyntas</i>	(Godart, 1824)	
Common Name	Eastern Tailed Blue				
Food	Legumes				
Larva Image	Allen (1997) Pl. 35				
Adult Image	Iftner (1992) Pl. 24, Allen (1997) Pl. 10				
Number Observed	TNTC				
Data	7-Aug	C-6- 1	25-Jul G-7-D 1	11-Sep E-10-A 3	22-Sep H-5-C 1
	14-Aug	I-5-A 1	31-Jul I-5-B 2	11-Sep G-5-A TNTC	22-Sep J-5-A 8
	14-Aug	I-5-B 5	31-Jul J-6-B 2	11-Sep J-6-B TNTC	22-Sep J-5-B 1
	14-Aug	J-5-B 1	20-May J-5-B 1	17-Sep G-5-A TNTC	22-Sep J-6-B 3
	14-Aug	J-6-B 1	4-Sep D-6-B 10+	17-Sep I-5-D 10+	22-Sep J-7-C 3
	15-Aug	H-5-B 10+	4-Sep G-5-A 2	17-Sep I-6-D TNTC	22-Sep J-9-C 2
	9-Jul	I-6-A 1	4-Sep J-6-B TNTC		
Hodges No.	04363	<i>Celastrina</i>	<i>ladon</i>	(Cramer, 1780)	
Common Name	Spring Azure				
Food	Dogwood, bunchberry, huckleberry, cherry, poison ivy				
Larva Image	Allen (1997) Pl. 35				
Adult Image	Iftner (1992) Pl. 24, Allen (1997) Pl. 10				
Number Observed	2				
Data	30-Apr	H-7-A 2			

Hodges No.	04363.1	<i>Celastrina neglecta</i>	(W. H. Edwards)									
Common Name	Summer Azure											
Food	Dogwood, legumes, mints, spirea, sumac											
Larva Image	Very similar to <i>C. lalande</i>											
Adult Image	Iftner (1992) Pl. 24											
Number Observed	TNTC											
Data	1-Aug 7-Aug 6-Jul 19-Jul 19-Jul 19-Jul 19-Jul 19-Jul 20-Jul 24-Jul	H-5-B C-6-D G-3-B B-6-D C-6-B C-6-C G-5-D I-6-A H-6-B H-5-B	TNTC 3 1 6 2 2 1 4 1 53	24-Jul 25-Jul 31-Jul 31-Jul 31-Jul 4-Jun 12-Jun 12-Jun 12-Jun 12-Jun	J-6-B F-7-C I-5-B J-6-B J-8-D C-6-A B-7-B B-7-C C-6-A C-6-B	17 10+ 1 TNTC 10+ 1 3 8 1 4	12-Jun 12-Jun 12-Jun 13-Jun 13-Jun 18-Jun 18-Jun 18-Jun 18-Jun 12-Jun	J-2-B J-3-C J-3-D C-6-B C-6-D B-7-B G-4-C G-4-D H-8-B C-6-B	1 10+ 10+ 10+ 10+ 1 TNTC TNTC 10+ 4	18-Jun 18-Jun 18-Jun 19-Jun 25-Jun 25-Jun 26-Jun 4-Sep 5-Sep	H-8-C H-8-D I-6-D B-7-B G-4-D I-5-D I-5-A H-5-B B-7-A	10+ 10+ 10+ 13 10+ 10+ 3 1 10+

Libytheidae Snout Butterflies

Hodges No.	04410	<i>Libytheana carinenta bachmanii</i>	(Kirtland, 1851)									
Common Name	American Snout											
Food	Hackberry											
Larva Image	Allen (1997) Pl. 35											
Adult Image	Iftner (1992) Pl. 25, Allen (1997) Pl. 23											
Number Observed	10											
Data	1-Aug 19-Jul	H-5-B B-6-D	2 1	24-Jul 24-Jul	C-7-D H-4-A	1 2	24-Jul 25-Jul	H-9-D G-7-D	1 1	31-Jul 4-Sep	D-9-B H-5-B	1 1

Nymphalidae Brush-footed Butterflies

Hodges No.	04420	<i>Polygonia interrogationis</i>	(Fabricius, 1798)									
Common Name	Question Mark											
Food	Elm, hackberry											
Larva Image	Wagner (1997) p. 95											
Adult Image	Iftner (1992) Pl. 29 and 30, Opler (1984) Pl. 26 (154-156)											
Number Observed	136											
Data	7-Aug 14-Aug 15-Aug 6-Jul 6-Jul 9-Jul 10-Jul 10-Jul 10-Jul 10-Jul	H-6-A H-6-A E-11-D B-6-D B-7-B J-4-A B-7-B F-10-B H-6-A H-6-B I-6-C	2 1 1 1 1 4 4 1 5 1 1	19-Jul 24-Jul 24-Jul 12-Jun 12-Jun 12-Jun 12-Jun 13-Jun 13-Jun 13-Jun 13-Jun	C-6-B G-5-D H-5-B B-7-C C-6-B E-6-D J-3-D F-10-B1 H-6-A H-6-B	1 2 1 9 2 1 1 1 5 8 8	13-Jun 18-Jun 18-Jun 19-Jun 19-Jun 19-Jun 19-Jun 19-Jun 17-Sep 17-Sep	I-6-C C-5-B H-8-C B-7-B F-10-B F-4-D H-4-D H-6-A E-11-D H-6-A	4 2 1 9 5 2 6 10 1 1	19-Jun 19-Jun 26-Jun 26-Jun 26-Jun 26-Jun 26-Jun 10-May 20-May 4-Sep	H-6-B I-6-C B-7-B F-10-B H-6-A I-6-C B-8-C B-7-B J-5-B H-4-D	8 11 6 6 6 1 1 1 1 2

Hodges No.	04421	<i>Polygonia comma</i>	(Harris, 1842)	
Common Name	Comma or Hop Merchant			
Food	Nettles, elm, hop			
Larva Image	Wagner (1997) p. 95, Mitchell/Zim (1987) p. 51			
Adult Image	Iftner (1992) Pl. 30 and 31, Opler (1984) Pl. 28 (163-165)			
Number Observed	52			
Data	15-Aug E-11-D 2	24-Jul H-6-A 1	26-Jun B-7-B 8	4-Sep H-4-D 1
	10-Jul F-10-B 1	12-Jun B-7-B 1	26-Jun F-10-B 8	4-Sep I-6-C 1
	10-Jul H-6-A 4	19-Jun H-6-A 1	4-Sep C-6-C 1	17-Sep C-6-C 5
	10-Jul I-6-D 2	25-Jun C-6-A 1	4-Sep H-4-A 4	17-Sep H-4-A 1
Hodges No.	04432	<i>Nymphalis antiopa</i>	(Linnaeus, 1758)	
Common Name	Mourning Cloak			
Food	Willow, elm, cottonwood, poplar, hackberry, birch, aspen			
Larva Image	Wagner (1995) p. 23, Mitchell/Zim (1987) p. 55			
Adult Image	Iftner (1992) Pl. 32, Opler (1984) Pl. 28 (167,168)			
Number Observed	58			
Data	30-Apr H-7-A 1	12-Jun J-6-A 1	18-Jun H-9-C 1	26-Jun B-7-B 1
	14-Aug C-6-C 1	13-Jun B-7-B 2	18-Jun I-6-D 1	26-Jun H-6-A 2
	14-Aug E-11-D 1	13-Jun F-10-B 1	19-Jun B-7-B 4	1-May G-4-D 1
	6-Jul B-7-B 1	13-Jun H-6-A 4	19-Jun F-10-B 6	17-Sep H-4-A 1
	10-Jul I-6-C 1	13-Jun H-6-B 2	19-Jun H-6-A 6	17-Sep I-6-C 4
	12-Jun B-7-C 1	13-Jun I-6-C 4	19-Jun H-6-B 2	18-Sep H-4-A 1
	12-Jun E-6-D 1	18-Jun C-5-B 1	19-Jun I-6-C 6	
	12-Jun F-10-B 1	18-Jun D-5-B 2		
Hodges No.	04434	<i>Vanessa virginiensis</i>	(Drury, 1773)	
Common Name	American Painted Lady			
Food	Everlasting, composites, pussy toes, burdock, ironweed			
Larva Image	Wright (1993) p. 104			
Adult Image	Iftner (1992) Pl. 32, Opler (1984) Pl. 29 (170,171)			
Number Observed	TNTC			
Data	30-Apr B-6-C 1	5-Jun J-5-D 1	1-May G-4-D 1	19-May I-6-B TNTC
	6-Jul B-6-D 4	12-Jun J-2-B 1	19-May C-6-A TNTC	20-May B-6-A TNTC
	10-Jul B-6-D 1	18-Jun I-6-D 5	19-May C-6-C TNTC	20-May C-5-A 10+
	4-Jun G-5-D 1	18-Jun J-5-A 1	19-May C-6-D TNTC	20-May C-6-A TNTC
	4-Jun J-5-B 2	25-Jun I-5-D 2	19-May F-10-B 6	20-May H-4-C 1
	4-Jun J-6-C 1	26-Jun I-5-A 1	19-May H-5-B 10	20-May J-5-B TNTC
	5-Jun J-5-A 1			20-May J-6-C TNTC

Hodges No.	04435	Vannessa	<i>cardui</i>	(Linnaeus, 1758)
Common Name	Painted Lady			
Food	Thistle, mallow			
Larva Image	Wright (1993) p. 104			
Adult Image	Iftner (1992) Pl. 32, Opler (1984) Pl. 29 (172,173)			

Number Observed 29

Data	30-Apr	H-6-A	1	15-Aug	G-7-C	1	6-Jul	C-6-A	2	1-May	H-6-A	1
	14-Aug	I-5-A	6	15-Aug	H-5-B	3	19-Jul	B-7-B	1	17-Sep	G-5-A	4
	14-Aug	J-6-B	1	6-Jul	B-7-B	3	31-Jul	I-5-B	1	17-Sep	I-5-A	3
	15-Aug	C-6-C	1							17-Sep	I-5-D	1

Hodges No.	04437 a	Vannessa	<i>atalanta rubria</i>	(Fruhstorfer, 1909)
Common Name	Red Admiral			
Food	Nettles			
Larva Image	Wright (1993) p. 102, Mitchell/Zim (1987) p. 54			
Adult Image	Iftner (1992) Pl. 33, Opler (1984) Pl. 30 (175,176)			

Number Observed TNTC

Data	17-Sep	I-5-D	1	19-Jul	G-5-D	1	19-Jun	H-6-B	11	19-May	H-9-C	TNTC
	30-Apr	B-6-C	3	19-Jul	H-4-C	1	19-Jun	I-6-C	16	19-May	I-6-B	TNTC
	30-Apr	H-7-A	15+	24-Jul	H-4-A	1	25-Jun	G-4-D	10+	20-May	B-6-A	TNTC
	30-Apr	H-8-A	20+	31-Jul	G-10-B	1	25-Jun	I-5-D	1	20-May	C-5-A	10+
	30-Apr	H-9-C	7	4-Jun	B-6-A	15+	26-Jun	B-7-B	5	20-May	C-6-A	TNTC
	1-Aug	H-5-B	1	4-Jun	B-6-C	15+	26-Jun	F-10-B	4	20-May	J-5-B	TNTC
	7-Aug	E-11-D	1	5-Jun	H-6-B	2	26-Jun	H-6-A	12	20-May	J-6-C	TNTC
	7-Aug	H-6-A	1	5-Jun	J-5-A	1	26-Jun	I-6-C	2	4-Sep	C-6-C	3
	8-Aug	H-6-A	1	5-Jun	K-5-C	4	1-May	G-4-D	15+	4-Sep	H-4-A	22
	8-Aug	I-6-C	1	12-Jun	B-7-C	6	1-May	H-6-A	20+	4-Sep	H-4-D	8
	6-Jul	B-6-D	1	12-Jun	C-6-B	10+	1-May	H-7-A	15+	4-Sep	H-6-A	15
	6-Jul	B-7-B	3	12-Jun	E-6-D	1	9-May	A-8-D	TNTC	4-Sep	I-6-C	9
	6-Jul	C-6-A	3	12-Jun	J-5-D	10+	9-May	B-7-B	TNTC	17-Sep	E-11-D	4
	6-Jul	I-6-A	1	13-Jun	B-7-B	12	9-May	B-8-C	15+	17-Sep	G-5-A	1
	9-Jul	J-3-A	TNTC	13-Jun	F-10-B	4	9-May	F-10-B	TNTC	17-Sep	H-4-A	8
	9-Jul	J-4-A	15	13-Jun	H-6-A	6	10-May	J-6-B	2	17-Sep	H-6-A1	
	10-Jul	H-6-A	8	18-Jun	H-8-D10+		19-May	B-7-B	TNTC	22-Sep	H-5-C	1
	19-Jul	C-6-B	1	19-Jun	B-7-B	8				22-Sep	J-6-B	1

Hodges No.	04440	Junonia	<i>coenia</i>	Hubner, 1822
Common Name	Buckeye			
Food	Plantain, acanthus, snapdrgon, foxglove			
Larva Image	Allen (1997) Pl. 38			
Adult Image	Iftner (1992) Pl. 33, Allen (1997) Pl. 19			

Number Observed 2

Data	15-Aug	G-5-A	2
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Hodges No. **04447** *Euptoieta claudia* (Cramer, 1775)

Common Name Variegated Fritillary

Food Violets, plantain, stonecrop, purslane, passion flower

Larva Image Allen (1997) Pl. 36

Adult Image Iftner (1992) Pl. 26, Allen (1997) Pl. 11

Number Observed **2**

Data 4-Sep G-5-A 2

Hodges No. **04450** *Speyeria cybele* (Fabricius, 1775)

Common Name Great Spangled Fritillary

Food Violets

Larva Image Allen (1997) Pl. 36

Adult Image Iftner (1992) Pl. 26, Allen (1997) Pl. 11

Number Observed **TNTC**

Data	7-Aug	B-7-A	1	9-Jul	J-4-A	4	31-Jul	J-5-D	3	19-Jun	H-4-C	1
	6-Jul	B-6-A	7	9-Jul	J-4-D	2	4-Jun	B-6-A	1	25-Jun	C-6-A	10+
	6-Jul	B-6-D	7	10-Jul	G-5-D	1	12-Jun	H-4-D	1	25-Jun	G-4-B	10+
	6-Jul	B-7-B	4	19-Jul	C-6-B	2	13-Jun	C-6-D	1	25-Jun	G-4-D	TNTC
	6-Jul	C-5-A	6	19-Jul	C-6-C	4	18-Jun	B-7-B	1	25-Jun	I-5-D	TNTC
	6-Jul	C-6-A	7	19-Jul	D-5-A	4	18-Jun	C-5-B	10+	26-Jun	G-3-B	1
	6-Jul	G-3-B	6	19-Jul	G-5-D	3	18-Jun	G-4-C	1	26-Jun	I-5-A	10+
	6-Jul	H-4-A	2	19-Jul	H-6-A	1	18-Jun	I-2-A	1	26-Jun	I-5-D	3
	6-Jul	H-5-D	3	24-Jul	H-4-A	4	18-Jun	I-5-A	10+	4-Sep	D-6-B	1
	9-Jul	B-7-B	10+	24-Jul	I-6-A	1	18-Jun	I-6-D	10+	4-Sep	H-4-D	1
	9-Jul	C-6-B	1	31-Jul	G-10-B	1	18-Jun	J-5-A	10+	17-Sep	G-5-A	1
	9-Jul	H-6-D	10+				19-Jun	B-7-B	2	17-Sep	I-6-D	2

Hodges No. **04465** *Boloria bellona* (Fabricius, 1775)

Common Name Meadow Fritillary

Food Violets

Larva Image Allen (1997) Pl. 36

Adult Image Opler (1984) Pl. 24 (140,141), Allen (1997) Pl. 14

Number Observed **TNTC**

Data	30-Apr	G-4-D	20+	24-Jul	H-4-C	1	18-Jun	J-5-A	2	4-Sep	G-5A	22
	30-Apr	H-6-A	1	24-Jul	I-6-A	1	19-Jun	J-4-D	1	5-Sep	B-7-A	1
	1-Aug	H-6-B	2	31-Jul	F-7-D	2	25-Jun	C-6-A	1	11-Sep	G-5-A	5
	14-Aug	I-2-B	1	31-Jul	I-5-B	5	25-Jun	G-4-B	1	17-Sep	G-5-A	11
	14-Aug	I-5-A	2	31-Jul	I-5-D	4	25-Jun	G-4-D	10+	17-Sep	I-5-A	5
	15-Aug	G-7-C	1	31-Jul	J-6-B	1	25-Jun	I-5-D	TNTC	17-Sep	-5-D	2
	6-Jul	G-3-B	1	12-Jun	J-2-A	15+	26-Jun	I-5-A	10+	17-Sep	I-6-D	8
	6-Jul	H-5-D	1	18-Jun	I-2-A	4	1-May	G-4-D	3	22-Sep	J-5-A	3
	19-Jul	G-5-D	1	18-Jun	I-5-A	4	1-May	H-9-C	1	22-Sep	J-5-B	1
	19-Jul	H-4-C	1	18-Jun	I-6-D	4	4-Sep	G-5-A	14			

Hodges No.	04481	<i>Phyciodes</i>	<i>tharos</i>	(Drury, 1773)
Common Name	Pearl Crescent			
Food	Asters			
Larva Image	Allen (1997) Pl. 37			
Adult Image	Iftner (192) Pl. 28, Allen (1997) Pl. 15			
Number Observed	TNTC			
Data	14-Aug I-2-B 2	9-Jul H-6-D 2	5-Jun J-5-A 1	4-Sep D-6-B 2
	14-Aug I-5-A 7	9-Jul I-6-A 1	5-Jun J-5-D 1	4-Sep H-5-B 3
	14-Aug I-5-B 7	9-Jul J-3-A 2	12-Jun J-2-A 15+	4-Sep J-6-B TNTC
	14-Aug J-5-B 1	19-Jul I-6-A 3	18-Jun I-5-A 1	11-Sep E-10-A 10+
	15-Aug H-5-B 10+	24-Jul H-4-A 1	18-Jun J-5-A	11-Sep G-5-A 10+
	6-Jul B-6-A 1	24-Jul H-5-B 1	9-May B-7-B 1	11-Sep J-6-B 2
	6-Jul B-7-B 5	31-Jul G-10-B 1	10-May B-7-B	17-Sep G-5-A TNTC
	6-Jul C-6-A 2	31-Jul I-5-B 2	19-May C-5-B 2	17-Sep I-6-D TNTC
	6-Jul C-6-D 1	31-Jul I-5-D 2	19-May F-10-B 1	22-Sep H-5-C 12
	6-Jul G-3-B 1	31-Jul J-5-D 3	20-May B-6-A 10+	22-Sep J-5-A TNTC
	6-Jul H-6-D 4	4-Jun J-5-B 4	20-May C-6-A 10+	22-Sep J-5-B 9
	9-Jul B-7-B 4	4-Jun J-6-C 1	20-May H-4-C 1	22-Sep J-7-C 1
			20-May J-5-B 10+	22-Sep J-9-C 8

Hodges No.	04522 b	<i>Limenitis</i>	<i>arthemis astyanax</i>	(Fabricius, 1775)
Common Name	Red-spotted Purple			
Food	Wild cherry, willow, apple			
Larva Image	Wright (1993) p. 48			
Adult Image	Iftner (1992) Pl. 34, Opler (1987) Pl. 31 (182-185)			
Number Observed	35			
Data	7-Aug B-7-A 2	24-Jul H-5-B 2	19-Jun I-6-C 1	4-Sep I-6-C 1
	8-Aug H-6-A 1	31-Jul I-6-A 1	26-Jun F-10-B 1	4-Sep J-6-B 1
	8-Aug I-6-C 1		26-Jun H-6-A 1	5-Sep B-7-A 1
	14-Aug C-7-A 1	13-Jun H-6-B 1	9-May B-7-B 1	11-Sep E-10-A 1
	14-Aug H-6-A 1	19-Jun F-10-B 1	4-Sep C-6-C 3	17-Sep H-4-A 1
	14-Aug I-6-C 1	19-Jun F-4-D 1	4-Sep H-4-A 3	18-Sep H-4-A 1
	24-Jul H-4-C 1	19-Jun H-4-C 1	4-Sep H-5-B 3	22-Sep J-5-A 1

Hodges No.	04523	<i>Limenitis</i>	<i>archippus archippus</i>	(Cramer, 1776)
Common Name	Viceroy			
Food	Willow, poplar, cottonwod			
Larva Image	Mitchell/Zim (1987) p. 56, Wright (1993) p. 48			
Adult Image	Iftner (1992) Pl. 33, Opler (1984) Pl. 32 (187,188)			
Number Observed	28			
Data	1-Aug H-6-B 2	24-Jul C-7-D 1	25-Jul H-9-A 1	5-Sep E-11-D 1
	7-Aug D-5-B 2	24-Jul H-6-A 1	20-May C-6-A 1	11-Sep G-5-A 2
	14-Aug I-5-A 1	24-Jul I-7-D 1	4-Sep C-6-C 1	17-Sep G-5-A 1
	15-Aug G-5-A 4	25-Jul F-8-D 1	4-Sep C-7-D 1	22-Sep H-5-C 1
	15-Aug G-7-C 2	25-Jul H-5-B 1	4-Sep G-5-A 2	22-Sep J-9-C 1

Apaturidae Hackberry ButterfliesHodges No. **04557** *Asterocampa celtis*

(Boisduval & LeConte, 1833)

Common Name Hackberry Butterfly

Food Hackberry, elm

Larva Image Wright (1993) p. 26, Mitchell/Zim (1987) p. 59

Adult Image Iftner (1992) Pl. 35, Opler (1984) Pl. 32 (191,192)

Number Observed **35**

Data	7-Aug	D-5-B	3	10-Jul	H-6-A	6	13-Jun	H-6-B	1	4-Sep	H-4-A	3
	7-Aug	H-6-A	1	24-Jul	H-6-A	3	19-Jun	H-6-A	4	4-Sep	H-6-A	2
	8-Aug	H-6-A	2	13-Jun	D-5-B	2	26-Jun	H-6-A	3	4-Sep	I-6-C	1
	14-Aug	H-6-A	4									

Hodges No. **04562.1** *Asterocampa clyton*

(Boisduval & LeConte, 1833)

Common Name Tawny Emperor

Food Hackberry

Larva Image Wagner (1995) p. 23

Adult Image Iftner (1992) Pl. 35

Number Observed **5**

Data	9-Jul	H-6-A	1	19-Jul	H-6-A	1	24-Jul	H-6-A	1	24-Jul	H-6-A	2
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Satyridae Wood Nymphs and SatyrsHodges No. **04568.1** *Enodia anthedon*

A. H. Clark, 1936

Common Name Northern Pearly Eye

Food Grasses

Larva Image Allen (1997) Pl. 39

Adult Image Iftner (1992) Pl. 36, Allen (1997) Pl. 22

Number Observed **90**

Data	7-Aug	C-6-D	5	6-Jul	I-6-A	1	19-Jul	C-6-C	1	31-Jul	H-4-A	1
	7-Aug	E-11-D	4	9-Jul	J-4-A	14	20-Jul	J-6-B	1	25-Jun	H-6-A	1
	8-Aug	C-6-C	2	10-Jul	B-7-B	2	24-Jul	E-11-D	7	26-Jun	B-7-B	2
	8-Aug	H-6-A	4	10-Jul	E-10-A	1	24-Jul	H-6-A	2	4-Sep	H-4-A	1
	14-Aug	H-6-A	2	10-Jul	F-10-B	2	25-Jun	I-5-D	2	17-Sep	C-6-C	1
	6-Jul	H-6-C	2	10-Jul	H-6-A	5	24-Jul	H-6-A	18	17-Sep	H-4-A	1
	6-Jul	H-6-D	2	10-Jul	I-6-C	2	25-Jul	A-7-A	1	18-Sep	H-4-A	1
	6-Jul	I-6-A	3									

Hodges No.	04569 a	<i>Satyrodes</i>	<i>appalachia leeuwi</i>	Gatrell & Arbogast
Common Name	Appalachian Eyed Brown			
Food	Sedges			
Larva Image	Allen (1997) Pl. 39			
Adult Image	Iftner (1992) Pl. 367, Opler (1984) Pl. 34 (204)			

Number Observed **10**

Data	9-Jul	H-6-A	1	24-Jul	E-11-D	2	24-Jul	H-6-A	1	25-Jun	I-6-C	1
	10-Jul	H-6-A	4	24-Jul	H-6-A	1						

Hodges No. **04578** *Megisto* *cymela* (Cramer, 1777)

Common Name Little Wood Satyr

Food Grasses

Larva Image Allen (1997) Pl. 39

Adult Image Iftner (1992) Pl. 36, Allen (1997) Pl. 22

Number Observed **TNTC**

Data	6-Jul	B-6-A	2	4-Jun	B-6-C	TNTC	13-Jun	C-6-B	10+	19-Jun	B-7-B	11
	6-Jul	B-6-D	2	4-Jun	B-6-D	TNTC	13-Jun	H-6-A	2	19-Jun	F-4-D	8
	6-Jul	C-6-A	2	4-Jun	H-8-C	2	18-Jun	C-6-D	10+	19-Jun	H-6-B	6
	6-Jul	G-3-B	2	4-Jun	J-6-C	1	18-Jun	G-4-C	TNTC	19-Jun	J-4-D	TNTC
	6-Jul	H-6-D	10+	5-Jun	J-5-A	2	18-Jun	G-4-D	TNTC	25-Jun	G-4-D	TNTC
	6-Jul	I-6-A	3	12-Jun	B-7-C	4	18-Jun	H-8-B	10+	25-Jun	I-5-D	TNTC
	9-Jul	H-6-D	10+	12-Jun	C-6-B	TNTC	18-Jun	H-8-C	10+	26-Jun	G-3-B	10+
	9-Jul	I-6-A	1	12-Jun	J-2-A	10+	18-Jun	H-8-D	10+	26-Jun	H-6-A	13
	9-Jul	J-4-A	8	12-Jun	J-2-B	10+	18-Jun	I-5-A	TNTC	26-Jun	I-5-A	10+
	10-Jul	H-6-A	4	12-Jun	J-3-C	10+	18-Jun	I-6-D	TNTC	26-Jun	I-5-D	10+
	19-Jul	G-5-D	1	12-Jun	J-3-D	10+	18-Jun	J-5-A	10+	20-May	B-6-A	2
	4-Jun	B-6-A	TNTC	12-Jun	J-6-A	10+						

Hodges No. **04587** *Cercyonis* *pegala* (Fabricius, 1793)

Common Name Common Wood Nymph

Food Grasses

Larva Image Allen (1997) Pl. 39

Adult Image Iftner (1992) Pl. 37, Allen (1997) Pl. 23

Number Observed **TNTC**

Data	19-Jul	B-6-D	3	26-Jun	I-5-A	1	6-Jul	B-7-B	1	9-Jul	C-6-B	1
	19-Jul	C-6-B	2	8-Aug	H-6-A	1	6-Jul	C-5-A	2	9-Jul	H-6-D	10+
	19-Jul	C-6-C	1	14-Aug	H-6-A	1	6-Jul	C-6-A	4	9-Jul	J-3-A	TNTC
	19-Jul	D-5-A	3	14-Aug	I-5-A	2	6-Jul	C-6-D	2	9-Jul	J-4-A	11
	19-Jul	G-5-D	1	14-Aug	I-5-B	4	6-Jul	G-3-B	1	9-Jul	J-4-D	TNTC
	19-Jul	I-6-A	1	14-Augl-6-C	1		6-Jul	H-4-A	4	10-Jul	G-5-D	1
	31-Jul	I-5-B	1	14-Aug	J-5-B	3	6-Jul	H-5-D	3	10-Jul	H-6-A	2
	31-Jul	I-5-D	4	6-Jul	B-6-A	1	9-Jul	B-7-B	10+	25-Jun	I-5-D	1
	31-Jul	J-5-D	6									

Danaidae Milkweed ButterfliesHodges No. **04614** *Danaus plexippus* (Linnaeus, 1758)

Common Name Monarch

Food Milkweeds

Larva Image Mitchell/Zim (1987) p. 38, Wright (1993) p. 70

Adult Image Iftner (1992) Pl. 38

Number Observed TNTC

Data	1-Aug	H-5-B	2	10-Jul	G-5-D	4	31-Jul	F-7-D	2	4-Sep	G-5-A	4
	1-Aug	H-6-B	10+	19-Jul	B-6-D	3	31-Jul	G-10-B1		4-Sep	H-4-D	1
	7-Aug	I-2-C	1	19-Jul	D-5-A	1	31-Jul	I-5-B	5	11-Sep	D-9-D	1
	7-Aug	I-6-B	2	19-Jul	G-5-D	5	31-Jul	I-5-D	4	11-Sep	G-5-A	TNTC
	14-Aug	I-5-A	7	19-Jul	H-6-A	1	31-Jul	I-6-A	1	17-Sep	G-5-A	5
	14-Aug	I-5-B	2	24-Jul	C-7-D	1	31-Jul	J-5-D	10+	17-Sep	I-6-D	1
	14-Aug	J-5-B	6	24-Jul	G-5-D	2	31-Jul	J-8-D	10+	22-Sep	H-5-C	2
	14-Aug	J-6-B	1	24-Jul	H-4-C	2	4-Jun	J-6-C	2	22-Sep	J-5-A	1
	15-Aug	G-7-C	2	24-Jul	H-5-B	1	12-Jun	C-6-B	1	22-Sep	J-6-B	1
	9-Jul	H-6-D	1	24-Jul	I-6-A	3	12-Jun	J-2-A	1			

Appendix A: Checklist of the Butterflies of the NASA Plum Brook Station Erie County, Ohio

FAMILY HESPERIIDAE - Skippers

Skippers are usually small to medium, thick-bodied, orange, black to white in color butterflies. They have six fully developed walking legs and elongated antennal clubs often hooked at the tip.

- 03870 *Epargyreus clarus*
- 03909 *Thorybes bathyllus*
- 03947 *Erynnis juvenalis*
- 03952 *Erynnis horatius*
- 03959 *Erynnis baptisiae*
- 04004 *Ancyloxypha numitor*
- 04012 *Thymelicus lineola*
- 04023 *Hesperia leonardus*
- 04036 *Polites coras*
- 04041 *Polites themistocles*
- 04042 *Polites origenes*
- 04047 *Wallengrenia egeremet*
- 04048 *Pompeius verna*
- 04051 *Atrytone logan*
- 04059 *Poanes hobomok*
- 04060 *Poanes zabulon*
- 04078 *Euphyes vestris metacomet*

FAMILY PAPILIONIDAE - Swallowtail Butterflies

The swallowtails are large and brightly colored and usually have a long tail projecting from the hind wing. The males of most swallowtails patrol long routes in search of females. Adult feeding is often restricted to flowers with long tubes since the mouthparts are long. The larval host include several families of plants with aromatic leaves such as citrus, umbel, laurel, and pipevine familes.

- 04159 *Papilio polyxenes asterias*
- 04176 *Papilio glaucus*
- 04181 *Papilio troilus*

FAMILY PIERIDAE - White and Sulfur Butterflies

These butterflies are usually small to medium sized and are predominately white, yellow, or orange, often with some black or pinkish scaling. Adults feed on floral nectar and freshly emerged males of many species often take moisture at wet sand or mud. Larval hosts include crucifers, legumes, composites, heaths or willows.

- 04197 *Pieris rapae*
- 04209 *Colias philodice*
- 04210 *Colias eurytheme*
- 04237 *Eurema lisa*

FAMILY LYCAENIDAE - Gossamer Winged Butterflies

Most species are small and the eyes are usually indented near the antennae. The front legs of the males are somewhat reduced, although the females' legs are fully developed. The larvae feed on a variety of plant flowers, fruits or leaves. One species the Harvester caterpillar feeds on aphids.

- 04249 *Feniseca tarquinius*
- 04251a *Lycaena phlaeas americana*
- 04256 *Lycaena hyllus*
- 04282a *Satyrium calanus falicer*
- 04336a *Strymon melinus humuli*
- 04361 *Everes comyntas*

04363 Celastrina ladon
04363.1 Celastrina neglecta

FAMILY LIBYTHEIDAE - Snouts

This is the smallest butterfly family. Adults have elongated labial palpi which gives them the appearance of having a "snout". The adults have a short proboscis and feeds on small flowers and even bird droppings. The only known larval host include members of the hackberry family (*Celtis*).

04410 Libytheana carinenta bachmanii

FAMILY NYMPHALIDAE - Brush-footed Butterflies

These butterflies have strongly reduced forelegs, which are used as smell sensors instead of for walking. The pendant pupae hang from a silk button. This is the largest and most diverse family of true butterflies.

04420 Polygonia interrogationis
04421 Polygonia comma
04432 Nymphalis antiopa
04434 Vanessa virginiensis
04435 Vanessa cardui
04437a Vanessa atalanta rubria
04440 Junonia coenia
04447 Euptoieta claudia
04450 Speyeria cybele
04465 Boloriaiana bellona
04481 Phyciodes tharos
04522b Limenitis artemis astyanax
04523 Limenitis archippus

FAMILY APATURIDAE - Leaf Winged Butterflies

The males perch with closed wings while awaiting females. The adults prefer to feed at rotting fruit, sap flows, or dung, but occasionally take nectar at flowers. Their flight is usually strong, irregular, and rapid. The larvae feed on a variety of woodland trees and shrubs.

04557 Asterocampa celtis
04562.1 Asterocampa clyton

FAMILY SATYRIDAE - Satyr and Wood Nymph Butterflies

These are medium-sized brown butterflies with eyespots on the ventral wing surface of most species. They have a low, erratic, skipping flight pattern. Adults prefer to feed on sap flows, rotting fruit, or dung. Almost all feed on grasses or sedges as larvae.

04568.1 Enodia anthedon
04569a Satyrides appalachia leeuwi
04578 Megisto cymela
04587 Cercyonis pegala

FAMILY DANAIDAE - Milkweed Butterflies

The one species found locally is the Monarch Butterfly. All stages of this butterfly are distasteful and emetic due to the cardiac glycosides contained in the larval host leaves of the milkweed plants. The adult is a large orange butterfly with black scaling on the veins and a broad black margin on both wings above.

04614 Danaus plexippus



Part 2:
The Moths of the
NASA Plum Brook Station



Moths

Introduction:

After an extensive survey of the NASA Plum Brook Station, Erie County, Ohio during the summer of 2001, a total of 450 species of moths were recorded. A previous survey, 1994, recorded 385 species of moths. As discussed in Rings (1992), six species are listed as uncommon, three species are rare, and three species are of special interest. One species on the Ohio Department of Natural Resources Ohio's Endangered Wildlife List was recorded. Specimens of two recent moth introductions to North America from Europe were recorded. The month of May was unusually cool and wet; however, the month of July was very warm and dry.

Survey Methods/Techniques

Moths were surveyed using the following methods and techniques:

- a) light traps utilizing a 15 watt, 12 volt DC fluorescent blacklight were operated from dusk to dawn using a photoelectric control.



Light Trap



Blacklighting Sheet

- b) a white sheet (BL/Sheet) illuminated with a 15 watt, 12 volt fluorescent blacklight and a sunlamp was operated in various sectors on eleven nights (Figure 2)

- c) five to six hanging bait traps were permanently placed in various sectors (Figure 2) the entire summer. They were baited the morning of arrival and the bait was removed the next day upon departing the station.



- d) on several occasions "sugaring for moths" by spreading the same bait as used in the hanging traps on trees was done while blacklighting or in place of blacklighting.

- e) on several occasions during the day "tapping trees" for Catocala was performed. This activity involved looking very closely at tree trunks for moths.

Hanging Trap

- f) a virgin female Cecropia was placed in a cage overnight on 11 July in sector C-6-C.
- g) a Clearwing Borer Moth (Sesiidae) pheromone strip, lure 103 from Great Lakes IPM, Vestaburg, Michigan, was attached to each light trap and a butterfly net during the daytime.

The Station was divided into square sectors and each of these sectors was subdivided into four subsectors, Figure 1. Survey sampling was conducted in sectors offering diverse, unique, and suitable habits for a variety of moth species. Coordinates, GPS, for location of each bait trap and light trap are listed in Table 1. Sectors in which light traps were placed and the locations of bait traps and blacklighting activities are given in Figure 2.

Results:

The 450 moth species recorded include 196 species recorded in this survey, 2001, and not in the 1994 survey, Table 2. Also, 130 species identified in Table 2 were not recorded from Erie County prior to this survey.

The following species are of special interest because only a few specimens have been reported from Ohio or their habit is threatened, Rings(1992).

- a) 8878.1 *Catocala luctuosa*
Rare: One specimen was recorded 8 Aug in sector H-6-A. This moth is not widely distributed in Ohio and had not been rerecorded since 1963. This species is associated with shellbark hickory.
- b) 8817 *Catocala briseis*
Rare: Not recorded from Erie County prior to this survey. Larva feed on willow and there is a good population of this plant at the Station. One specimen was recorded on 11 Jul sector C-6-B and another in sector C-6-C on 25 July.
- c) 8897 *Allagrapha aerea*
Uncommon: Not recorded from Erie County prior to this survey. Recorded 1 specimen on 19 June sector H-4-D and one specimen sector E-11-B on 26 June.
- d) 9393 *Luperina stipata*
Rare: Not recorded from Erie County prior to this survey. Only recorded from Ohio in 1905. Recorded one specimen in July and three in August.
- e) 9878 *Lithomoia germana*
Uncommon: Not recorded from Erie County prior to this survey. Recorded one specimen in sector B-7-B on 30 April.
- f) 9963 *Anathix aggressa*
Uncommon: This species was also collected at Plum Brook in 1994. Recorded one specimen on 5 September in sector C-5-B.
- g) 10099 *Onocnemis saundersiana*
Uncommon: Two records of this species collected at the Resthaven Wildlife Area, Erie County in 1985 and 1991. This summer recorded five specimens on 18 September.

h) 10658 *Agrotis stigmosa*

Special Interest: One record of this species from Erie County in 1982 at Sheldon's Marsh State Nature Preserve. This moth is generally associated with open sandy areas. The disappearance of these areas in Ohio threatens the existence of this species. One specimen was recorded on 25 July in sector H-5-A which is a sandy area.

i) 10838 *Euxoa detersa*

Uncommon: In 1982 this moth was recorded in Berlin township, Erie County at Old Woman Creek National Estuarine Sanctuary. This species is often found in the Oak Openings Area of Lucas County suggesting it inhabits sandy soil areas. Recorded one specimen in sector J-5-C on 20 May.

j) 10851 *Euxoa redimicula*

Uncommon: One record of this species collected from Erie county in 1985 at Old Woman Creek National Estuarine Sanctuary. Recorded one specimen in sector I-5-B on 1 August.

k) 10870 *Richia acclivis*

Uncommon: One record of this species collected at the Resthaven Wildlife Area, Erie County in 1986. Recorded two specimens in sector I-6-B on 8 August.

l) 11000 *Anaplectoides prasina*

Uncommon: One record of this species collected at the Resthaven Wildlife Area, Erie county in 1985. Recorded two specimens on 1 August.

Two recent species introduced to North America from Europe were recorded.

Noctua pronuba, first recorded in Ohio in 1997 (Rings 1997), was recorded in 27 sectors from early June to early September for a total of 152 specimens. Not recorded in Erie county prior to this survey.

Apamen ophiogramma, first collected in Ohio by Roy Rings in 1997 (Metzler 1997) and also collected at the Ravenna Training and Logistic Site, Portage County, in 1999 was recorded on 20 July in sector J-6-B. Not recorded from Erie County prior to this survey.

One species, *Spartiniphaga inops*, is on the Ohio Department of Natural Resources Ohio's Endangered Wildlife List. Being a wetland species, it is endangered since wetlands are being destroyed. Prior to this survey this moth was only known from the Resthaven Wildlife Area, Erie County. It had been collected in Margaretta Township on 17 and 18 September in 1985. One specimen was recorded in sector H-3-A on 5 September.

The female cecropia caged overnight in sector C-6-C on 11 July was found mating the next morning. The bait traps were very successful in attracting several species of Catocala and three moths of the family Sphingidae: *Sphecodina abbottii*, *Darapsa myron*, and *Amphion floridensis* were often in the traps. *Amphion floridensis* was very common with 61 individuals recorded. No clearwing borer moths (Sesiidae) were recorded even with pheromone strips used on every trip to the Station. Several species of Catocala were recorded from the "tree tapping" and "sugaring" activities.

An annotated list of the 450 species recorded by superfamily in **BOLD CAPS**, family in **Bold**, and subfamilies in Standard Font is given and contains the information listed below.

Hodges Number	Genus species	Author
Common Name (If one exist)		
Larval Foodplant (If known)		
Reference to Larval Image (If available)		
Reference to Adult Image (If available)		
Number Recorded		
Picture (If available)		

Appendix A: Data (Day-Month, Sector, Number Recorded)

Recommendations:

After two surveys (1994, 2001) a total of 581 species of moths have been recorded at NASA Plum Brook Station, Appendix B. Such a large species number testifies to the very diverse and extensive habits found at the Station. The woodlands, large grass areas, and unique ecosystems around the magazines offer an ideal environment for these species.

Only by preserving the existing habitats will this diverse moth population survive. Limited access to the Station has permitted these habitats to develop and thrive. Hopefully this will continue. Protect the wetlands in sectors B-7, J-6, H-5, H-6, and all magazine sectors. Figure 3 highlights areas of special interest. One medium size grove of shagbark hickory occurs in sector H-6-A and is the primary habitat for several species of catocala, especially *C. luctuosa*. A more aggressive survey of this sector by using bait traps to determine the population of *C. luctuosa* would be advised for next summer. The larva of more than 55% of all species recorded feed on grasses so it is vital to protect all grasslands. Restrict mowing to roadsides, power lines, and access lanes, or only when necessary. Prevent the use of pesticides, herbicides, and burning.

Plum Brook Station is one of only a few great moth habitats remaining in the state of Ohio. Hopefully, efforts will continue to protect and maintain the entire facility.

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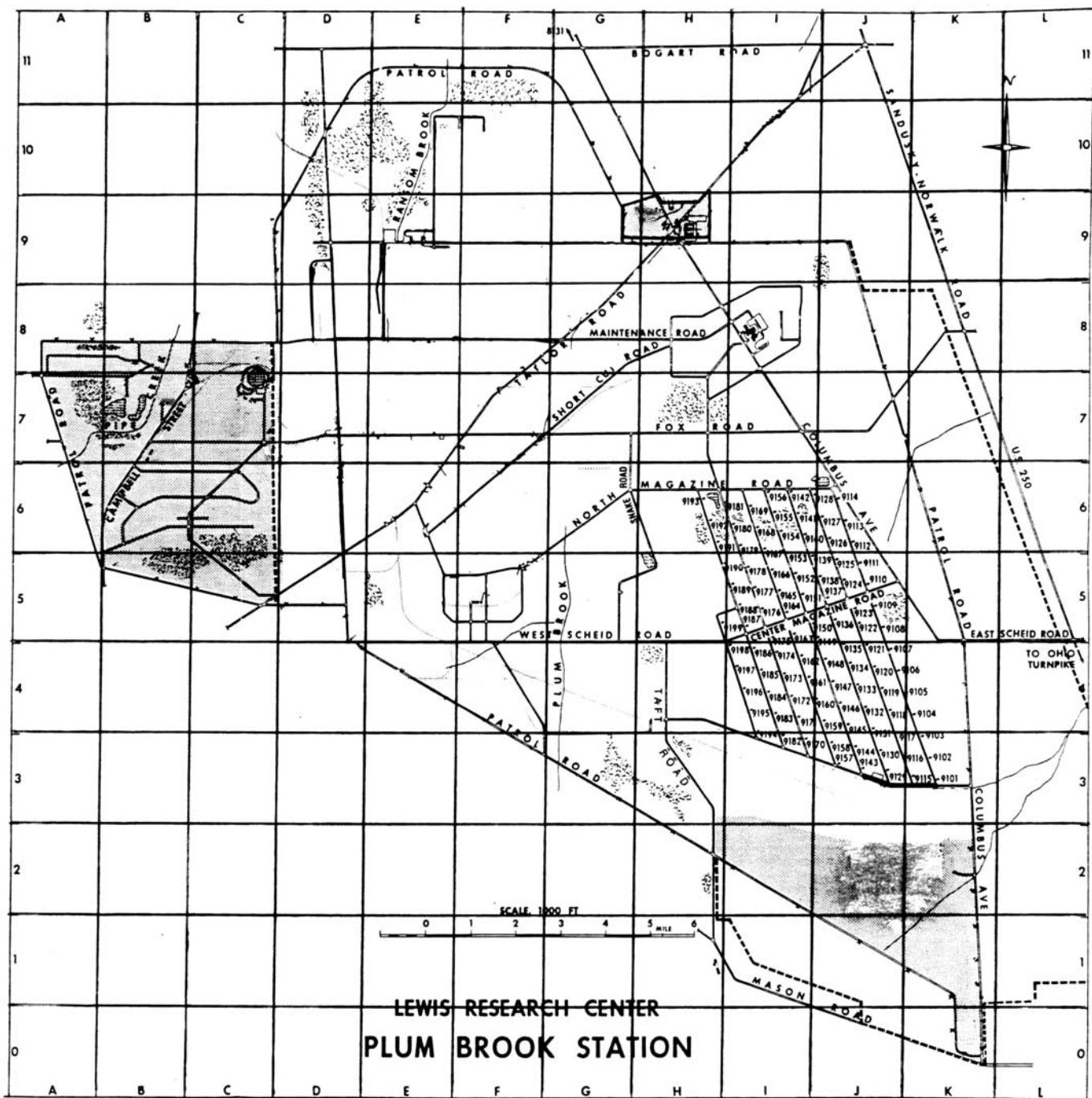
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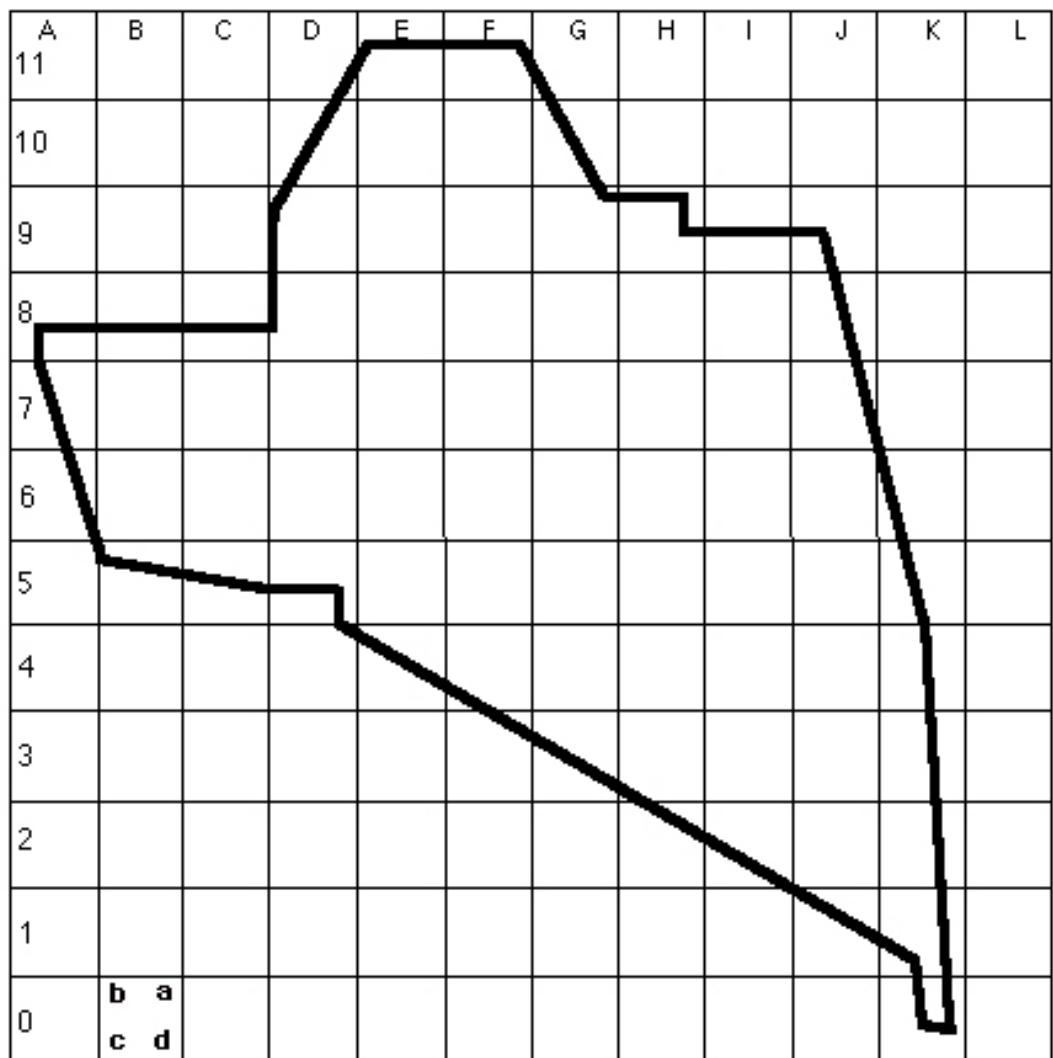
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**Figure1: Map Showing Coordinate Labeling System
For Sectors and Subsectors**



**Each sector was subdivided into subsectors
as shown in sector B-0 above.**

Figure 2: Map Showing Locations of Bait Traps (Blue), Black Lighting (Yellow), and Light Trap Sectors (Red).

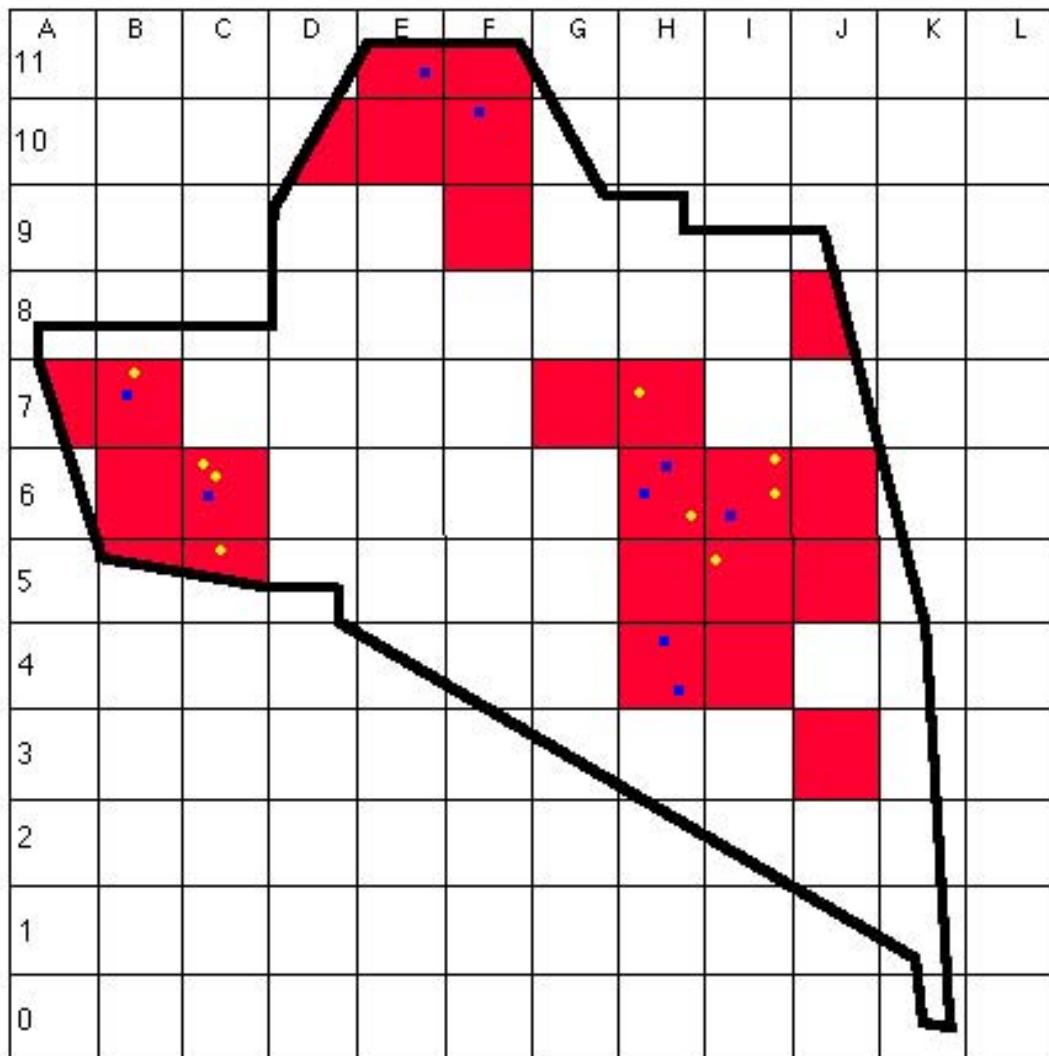


Figure 3: Sectors of Special Interest Highlighted in Blue

Letters A - M indicate locations of moth species of special interest.

A - <i>Catocala luctuosa</i>	B - <i>Catocala briseis</i>	C - <i>Allagrapha aerea</i>
D - <i>Luperina stipata</i>	E - <i>Lithomoia germana</i>	F - <i>Anathix aggressa</i>
G - <i>Onoclemis saundersiana</i>	H - <i>Agrotis stigmosa</i>	I - <i>Euxoa detersa</i>
J - <i>Euxoa redimicula</i>	K - <i>Richia acclivis</i>	L - <i>Anaplectoidesprasinana</i>
M - <i>Spartiniphaga inops</i>		

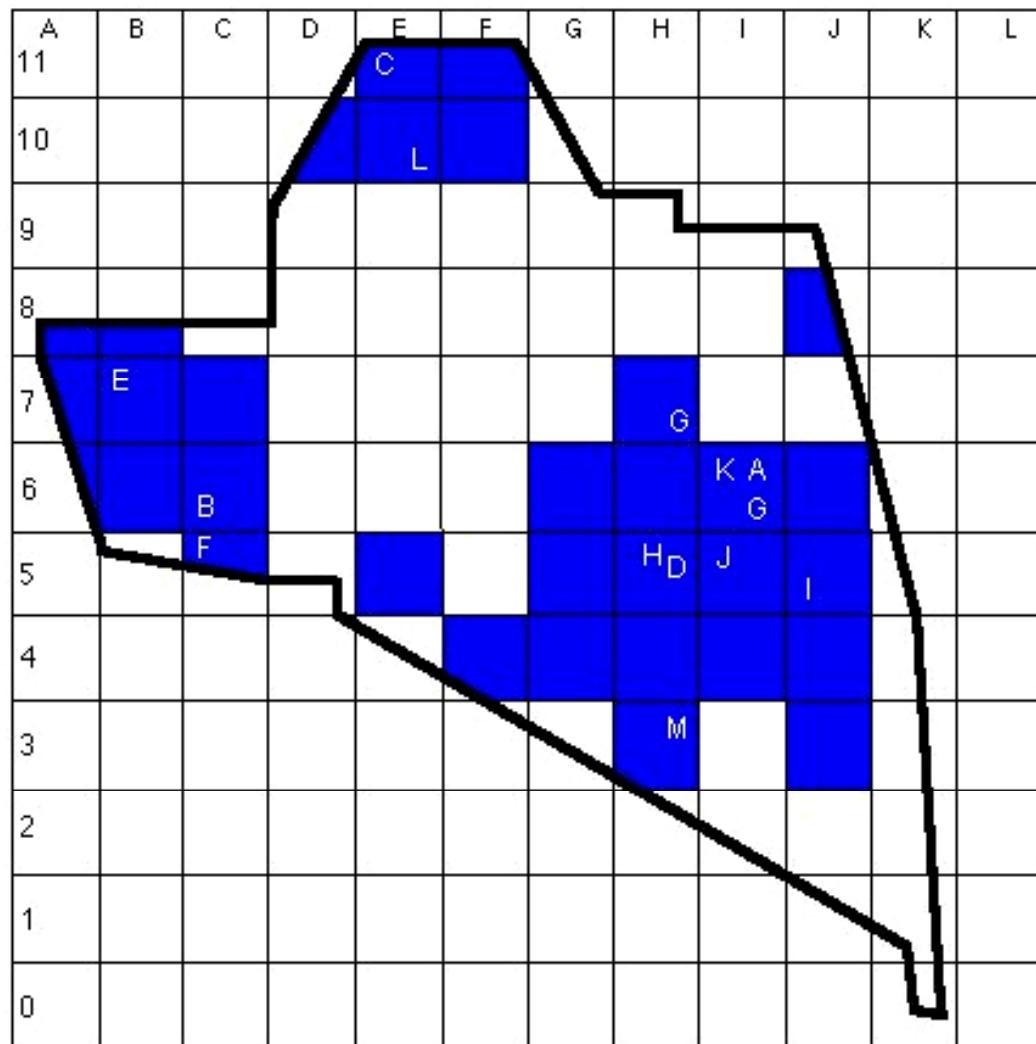


Table 1: GPS Coordinates for Light Trap, Blacklighting and Bait Trap Locations

Date	Sector	Light Trap	Latitude	Longitude
30-Apr	F-10-B	#1	N 41° 23.521'	W 82° 40.974'
	C-6-C	#2	N 41° 22.587'	W 82° 42.754'
	I-6-C	#3	N 41° 22.536'	W 82° 39.875'
	H-7-A	#4	N 41° 22.028'	W 82° 39.615'
9-May	F-10-B	#1	N 41° 23.520'	W 82° 40.878'
	B-7-B	#2	N 41° 22.587'	W 82° 42.754'
	C-6-C	#3	N 41° 21.988'	W 82° 42.398'
	H-4--B	#4	N 41° 21.536'	W 82° 40.026'
	I-6-A	#5	N 41° 22.156'	W 82° 39.418'
19-May	H-7-B	BL/Sheet	N 41° 22.438'	W 82° 40.113'
	D-10-A	#1	N 41° 23.248'	W 82° 41.279'
	B-7-A	#2	N 41° 22.514'	W 82° 42.600'
	B-6-D	#3	N 41° 21.983'	W 82° 42.691'
	G7-B	#4	N 41° 22.422'	W 82° 40.560'
	J-5-C	#5	N 41° 21.651'	W 82° 39.292'
4-Jun	H-6-D	BL/Sheet	N 41° 21.956'	W 82° 39.884'
	F-9-A	#1	N 41° 23.089'	W 82° 40.487'
	B-6-B	#2	N 41° 22.154'	W 82° 42.703'
	H-6-A	#3	N 41° 22.224'	W 82° 39.321'
12-Jun	F-9-A	#1	N 41° 23.080'	W 82° 40.486'
	F-11-C	#2	N 41° 23.541'	W 82° 40.951'
	H-6-A	#3	N 41° 22.232'	W 82° 39.920'
	H-4-D	#4	N 41° 21.284'	W 82° 39.794'
	J-5-D	#5	N 41° 21.663'	W 82° 39.066'
	I-6-A	BL/Sheet	N 41° 22.116'	W 82° 39.401'
18-Jun	I-6-D	#1	N 41° 21.918'	W 82° 39.527'
	H-4-D	#2	N 41° 21.273'	W 82° 39.797'
	H-6-A	#3	N 41° 22.160'	W 82° 39.943'
	C-5-B	#4	N 41° 21.930'	W 82° 42.365'
	F-11-C	#5	N 41° 23.537'	W 82° 40.951'
25-Jun	I-6-D	#1	N 41° 21.989'	W 82° 39.443'
	H-6-A	#2	N 41° 22.165'	W 82° 39.955'
	H-4-D	#3	N 41° 21.274'	W 82° 39.800'
	E-11-D	#4	N 41° 23.546'	W 82° 41.064'
	J-3-B	#1	N 41° 21.204'	W 82° 39.177'
9-Jul	I-6-C	#2	N 41° 21.980'	W 82° 39.644'
	H-6-A	#3	N 41° 22.160'	W 82° 39.943'
	E-10-A	#4	N 41° 23.481'	W 82° 41.285'
	C-6-C	BL/Sheet	N 41° 21.979'	W 82° 42.344'
	E-11-D	#1	N 41° 23.552'	W 82° 41.115'
19-Jul	B-6-D	#2	N 41° 21.992'	W 82° 42.686'
	H-6-A	#3	N 41° 22.160'	W 82° 39.945'
	J-6-B	#4	N 41° 22.015'	W 82° 39.246'
	E-10-D	#1	N 41° 23.326'	W 82° 41.222'

Table 1: GPS Coordinates for Light Trap, Blacklighting and Bait Trap Locations

	A-7-A	#2	N 41° 22.589'	W 82° 42.979'
	H-5-B	#3	N 41° 21.818'	W 82° 40.144'
	H-5-A	#4	N 41° 21.909'	W 82° 39.857'
31-Jul	E-10-D	#1	N 41° 23.097'	W 82° 41.392'
	B-5-A	#2	N 41° 21.776'	W 82° 42.487'
	H-6-A	#3	N 41° 22.121'	W 82° 39.984'
	I-5-B	#4	N 41° 21.843'	W 82° 39.740'
7-Aug	I-6-B	#1	N 41° 22.222'	W 82° 39.703'
	I-6-D	#2	N 41° 22.030'	W 82° 39.554'
	H-4-B	#3	N 41° 21.268'	W 82° 40.079'
	B-7-C	#4	N 41° 22.423'	W 82° 42.747'
	C-6-D	BL/Sheet	N 41° 22.001'	W 82° 42.411'
14-Aug	F-9-A	#1	N 41° 23.097'	W 82° 40.503'
	C-6-C	#2	N 41° 21.991'	W 82° 42.399'
	H-6-A	#3	N 41° 21.304'	W 82° 39.792'
	H-4-D	#4	N 41° 21.175'	W 82° 39.943'
4-Sep	D-6-C	#1	N 41° 21.974'	W 82° 42.692'
	C-5-B	#2	N 41° 21.381'	W 82° 42.730'
	H-6-A	#3	N 41° 22.203'	W 82° 39.917'
	J-5-D	#4	N 41° 21.742'	W 82° 39.039'
	H-3-A	#5	N 41° 21.255'	W 82° 40.086'
	I-6-B	BL/Sheet	N 41° 22.129'	W 82° 39.633'
17-Sep	F-11-C	#1	N 41° 23.548'	W 82° 41.017'
	C-6-C	#2	N 41° 23.548'	W 82° 42.330'
	H-7-D	#3	N 41° 23.548'	W 82° 39.475'
	I-6-D	#4	N 41° 23.548'	W 82° 39.475'
23-Sep	F-11-C	#1	N 41° 23.548'	W 82° 41.017'
	C-6-C	#2	N 41° 23.548'	W 82° 42.330'
	H-7-D	#3	N 41° 23.548'	W 82° 39.475'
	I-6-D	#4	N 41° 23.548'	W 82° 39.475'
30-Apr:23-Sep	F-10-B	Bait Trap	N 41° 23.519'	W 82° 40.878'
30-Apr:23-Sep	B-7-B	Bait Trap	N 41° 22.444'	W 82° 42.746'
30-Apr:23-Sep	H-6-B	Bait Trap	N 41° 22.056'	W 82° 40.031'
30-Apr:4-Jun	H-4-A	Bait Trap	N 41° 21.530'	W 82° 40.031'
4-Jun:23-Sep	H-6-A	Bait Trap	N 41° 22.150'	W 82° 39.971'
4-Jun:23-Sep	I-6-C	Bait Trap	N 41° 21.997'	W 82° 39.666'
12-Jun:23-Sep	H-4-D	Bait Trap	N 41° 21.278'	W 82° 39.087'

Table 2: List of species first recorded at NASA Plum Brook Station summer of 2001

00373	<i>Acrolophus popeanella</i> *	07645	<i>Heterophleps refusaria</i> *
00882	<i>Agonopterix robiniella</i> *	07647	<i>Heterophleps triguttaria</i> *
00951	<i>Machimia tentoriferella</i>	07665	<i>Olceclostera angelica</i> *
00992	<i>Ethmia zelleriella</i> *	07698	<i>Malacosoma disstria</i> *
02416	<i>Yponomeuta atomocella</i> *	07764	<i>Callosamia promethea</i> *
03219	<i>Sonia canadana</i>	07767	<i>Hyalophora cecropia</i> *
03720	<i>Sparganothis reticulatana</i> *	07786	<i>Ceratomia amyntor</i>
04624	<i>Harrisina americana</i> *	07790	<i>Ceratomia hageni</i> *
04659	<i>Packardia geminata</i> *	07796	<i>Sphinx eremitus</i>
04700	<i>Sibine stimulea</i> *	07802	<i>Sphinx chersis</i> *
04794	<i>Eustixia pupula</i> *	07809	<i>Sphinx kalmiae</i>
05017	<i>Loxostege cereralis</i> *	07828	<i>Pachysphinx modesta</i>
05228	<i>Polygrammodes flavidalis</i>	07870	<i>Sphecodina abbottii</i> *
05241	<i>Pantographa limata</i> *	07873	<i>Amphion floridensis</i> *
05250	<i>Lygropia rivulalis</i>	07894	<i>Hyles lineata</i>
05378	<i>Crambus laqueatellus</i> *	07895	<i>Closteria albosigma</i> *
05464	<i>Urola nivalis</i>	07904	<i>Datana drexelii</i> *
05518	<i>Aglossa cuprina</i> *	07906	<i>Datana contracta</i> *
05533	<i>Herculia olinalis</i> *	07919	<i>Peridea basitriens</i> *
05552	<i>Galasa nigrinodis</i> *	07926	<i>Notodontia scitipennis</i>
05556	<i>Tosale oviplagalis</i> *	07951	<i>Symmerista albifrons</i> *
05579	<i>Epipaschia zelleri</i> *	07957	<i>Dasylophia anguina</i> *
06236	<i>Habrosyne gloriosa</i> *	07998	<i>Lochmaeus manteo</i> *
06240	<i>Euthyatira pudens</i> *	08022	<i>Hyparpax aurora</i> *
06255	<i>Oreta rosea</i> *	08045.1	<i>Crambidia pallida</i>
06273	<i>Itame pustularia</i> *	08098	<i>Clemensia albata</i> *
06344	<i>Semiothisa signaria</i> *	08109	<i>Haploa reversa</i> *
06386	<i>Semiothisa ocellinata</i> *	08134	<i>Spilosoma congrua</i>
06419	<i>Enconista dislocaria</i> *	08140	<i>Hyphantriam cunea</i> *
06599	<i>Epimecis hortaria</i> *	08214	<i>Lophocampa maculata</i> *
06620	<i>Melanolophia canadaria</i> *	08296	<i>Dasychira basiflava</i> *
06655	<i>Hypagyrtis esther</i> *	08314	<i>Orgyia definita</i> *
06667	<i>Lomographa vestaliata</i> *	08318	<i>Lymantria dispar</i> *
06677	<i>Cabera erythemia</i> *	08323	<i>Idia aemula</i>
06678	<i>Cabera variolaria</i> *	08338	<i>Phalaenophana pyramusalis</i>
06754	<i>Pero hubneraria</i> *	08351	<i>Zanclognatha cruralis</i> *
06822	<i>Metarranthis duaria</i> *	08353	<i>Zanclognatha ochreipennis</i> *
06836	<i>Anagoga occiduaria</i> *	08355	<i>Chytolita morbidalis</i> *
06842	<i>Plagodis phlogosaria</i> *	08364	<i>Phalaenostola larentioides</i>
06894	<i>Lambdina fervidaria</i> *	08370	<i>Bleptina caradrinalis</i>
06964	<i>Tetracis cachexiata</i> *	08393	<i>Lascoria ambigualis</i>
06965	<i>Eugonobapta nivosaria</i>	08398	<i>Palthis asopialis</i>
06974	<i>Patalene olyzonaria</i> *	08404	<i>Rivula propinqualis</i>
07009	<i>Nematocampa limbata</i> *	08442	<i>Bomolocha baltimorensis</i> *
07046	<i>Nemoria bistriaria</i> *	08443	<i>Bomolocha bijugalis</i>
07048	<i>Nemoria mimosaria</i>	08445	<i>Bomolocha abalienalis</i> *
07058	<i>Synchlora aerata</i> *	08479	<i>Spargaloma sexpunctata</i>
07114	<i>Idaea demissaria</i>	08481	<i>Phytometra rhodarialis</i> *
07136	<i>Cyclophora packardi</i> *	08490	<i>Pangrapta decoralis</i> *
07169	<i>Scopula inductata</i>	08491	<i>Ledaea perditalis</i> *
07197	<i>Eulithis gracililineata</i> *	08493	<i>Isogona tenuis</i> *
07292	<i>Hydria prunivorata</i> *	08499	<i>Metalectra discalis</i> *
07307	<i>Mesoleuca ruficillata</i> *	08514	<i>Scolecocampa liburna</i> *
07390	<i>Xanthorhoe lacustrata</i>	08534	<i>Plusiodonta compressipalpis</i>
07414	<i>Orthonama obstipata</i>	08536	<i>Calyptera canadensis</i>
07416	<i>Orthonama centrostrigaria</i>	08555	<i>Scoliopteryx libatrix</i>
07430	<i>Trichodezia albovittata</i>	08588	<i>Panopoda carneicosta</i>
07445	<i>Horisme intestinata</i> *	08716	<i>Zale unilineata</i> *

Species marked with an Asterisk (*) are new records for Erie County, Ohio

Table 2: List of species first recorded at NASA Plum Brook Station summer of 2001

08738	<i>Caenurgina crassiuscula</i> *	10021	<i>Copivaleria grotei</i> *
08770	<i>Catocala innubens</i> *	10099	<i>Oncocnemis saundersiana</i>
08770	<i>Catocala robinsoni</i> *	10202	<i>Cucullia convexipennis</i> *
08784	<i>Catocala obscura</i> *	10304	<i>Lacanobia legitima</i>
08788	<i>Catocala reecta</i> *	10414	<i>Lacinipolia implicata</i> *
08788.1	<i>Catocala luctuosa</i> *	10431	<i>Faronta diffusa</i>
08792	<i>Catocala vidua</i> *	10495	<i>Orthosia hibisci</i> *
08795	<i>Catocala palaeogama</i> *	10501	<i>Crocigrapha normani</i>
08796	<i>Catocala nebulosa</i> *	10518	<i>Achatia distincta</i>
08798	<i>Catocala neogama</i>	10521	<i>Morrisonia confusa</i>
08802	<i>Catocala cerogama</i> *	10521.1	<i>Morrisonia lates</i> *
08803	<i>Catocala relicta</i> *	10567	<i>Ulolonche culea</i> *
08806	<i>Catocala parta</i>	10658	<i>Agrotis stigmosa</i>
08817	<i>Catocala briseis</i> *	10674	<i>Feltia subgothica</i> *
08840	<i>Catocala illecta</i> *	10698.2	<i>Trichosilia geniculata</i> *
08881	<i>Abrostola urentis</i>	10805	<i>Euxoa tessellata</i> *
08907	<i>Autographa biloba</i>	10851	<i>Euxoa redimicula</i>
08970	<i>Baileya ophthalmica</i> *	10870	<i>Loxagrotis accivis</i>
08971	<i>Baileya dormitans</i> *	10925.1	<i>Noctua pronuba</i> *
08972	<i>Baileya levitans</i>	10943	<i>Xestia normaniana</i> *
08983	<i>Meganola minuscula</i> *	11000	<i>Anaplectoides prasina</i>
09044	<i>Thioptera nigrofimbria</i> *	11135	<i>Schinia rivulosa</i> *
09047	<i>Lithacodia muscosula</i> *		
09055.3	<i>Anterastria teratophora</i> *		
09066	<i>Leuconycta lepidula</i> *		
09185	<i>Colocasia propinquilinea</i>		
09199	<i>Acronicta rubricoma</i>		
09200	<i>Acronicta americana</i> *		
09203	<i>Acronicta dactylina</i> *		
09205	<i>Acronicta lepusculina</i>		
09227	<i>Acronicta laetifica</i> *		
09236	<i>Acronicta morula</i> *		
09238	<i>Acronicta lobeliae</i>		
09244	<i>Acronicta modica</i> *		
09251	<i>Acronicta retardata</i> *		
09286	<i>Harrisimemna trisignata</i> *		
09329	<i>Apamea cariosa</i>		
09385.2	<i>Apamea ophiogramma</i> *		
09393	<i>Luperina stipata</i> *		
09410	<i>Oligia crytora</i> *		
09427	<i>Meropleon diversicolor</i> *		
09435	<i>Spartiniphaga inops</i>		
09454	<i>Amphipoea velata</i> *		
09484	<i>Papaipema rutila</i> *		
09485	<i>Papaipema baptisiae</i>		
09496	<i>Papaipema nebris</i>		
09520	<i>Achatodes zea</i>		
09525	<i>Bellura obliqua</i>		
09545	<i>Euplexia benesimilis</i> *		
09631	<i>Callopistria mollissima</i>		
09637	<i>Magusa orbifera</i>		
09664	<i>Balsa labecula</i> *		
09666	<i>Spodoptera frugiperda</i>		
09684	<i>Elaphria grata</i>		
09754	<i>Plagiomimicus pityochromus</i>		
09815	<i>Cosmia calami</i>		
09878	<i>Lithomoia germana</i> *		
09886	<i>Lithophane patefacta</i> *		

Species marked with an Asterisk (*) are new records for Erie County, Ohio

Appendix B: Data for Moth Records NASA Plum Brook Station 2001
(Date, Sector, Number Recorded)

00373

10-Jul E-10-A 3 20-Jul J-6-B 2

00882

10-Jul J-3-B 6

00951

18-Sep C-6-C 3 23-Sep C-6-C 2

00992

20-May B-7-A 1 19-Jun H-4-D 1

01011

20-Jul J-6-B 1	10-May C-6-C 3	10-May I-6-A 16	20-May D-10-A 4
20-May B-7-A 1	20-May J-5-C 5		

01046

25-Jul H-5-A 1	26-Jun H-6-A 1	10-Jul H-6-A 1
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01467

10-Jul J-3-B 10

02295

26-Jun H-6-A 1	10-Jul J-3-B 1	19-Jun I-6-D 1
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02401

30-Apr B-7-B 6	8-Aug I-6-D 1	20-Jul J-6-B 1	1-May H-7-A 1
1-Aug E-10-D 2	15-Aug C-6-C 2	25-Jul A-7-A 1	10-May F-10-A 1
8-Aug B-7-C 48	10-Jul H-6-A 1	25-Jul E-10-D 1	5-Sep D-6-C 1
8-Aug H-4-B 3	20-Jul B-6-D 3	25-Jul H-5-A 1	5-Sep H-3-A 1
8-Aug I-6-B	20-Jul F-10-B 2	19-Jun H-4-D 2	18-Sep C-6-C 5
~			23-Sep C-6-C 9

02416

26-Jun H-4-D 1

02693

13-Jun H-6-A 2 13-Jun J-5-D 1

02694

19-May H-6-D 1

02738

23-Sep I-6-D 1 25-Jul H-5-A 1

02823

26-Jun H-6-A 1 10-Jul H-6-A 1

02859

26-Jun H-4-D 2 19-Jun I-6-D 1

02936

23-Sep H-6-D 6

03219

20-May B-7-A 1

03367

20-May J-5-C 1 20-May D-10-A 1

03492

26-Jun H-4-D 1

03503

26-Jun H-6-A 1 19-Jun H-4-D 1 13-Jun H-6-A 1 19-Jun I-6-D 2

03594

19-Jun I-6-D 1

03597

26-Jun H-6-A 1 10-Jul H-6-A 1

03623

26-Jun H-4-D 1

03635

13-Jun H-6-A 7 26-Jun H-6-A 7 10-Jul H-6-A 3

03648

26-Jun H-4-D 1 19-Jun H-4-D 1 19-Jun I-6-D 4

03695

23-Sep I-6-D 1 26-Jun H-6-A 1 10-Jul J-3-B 1 10-Jul E-10-A 1
26-Jun H-4-D 2 19-Jun I-6-D 1

03720

8-Aug I-6-B 1

04624

10-Jul E-10-A 2 10-Jul H-6-A 3 20-Jul B-6-D 1

04652

13-Jun H-4-D 1 19-Jun H-6-A 4 26-Jun H-4-D 1 20-May D-10-A 1
19-Jun H-4-D 2

04659

13-Jun F-11-C 1

04665

10-Jul E-10-A 2	20-Jul J-6-B 1	13-Jun H-4-D 1	19-Jun H-6-A 2
10-Jul H-6-A 4	25-Jul E-10-D 1	13-Jun H-6-A 2	19-Jun I-6-D 2
20-Jul B-6-D 1	25-Jul H-5-A 2	13-Jun J-5-D 2	26-Jun E-11-B 1
20-Jul F-10-B 3	13-Jun F-11-C 2	19-Jun C-5-B 3	26-Jun H-4-D 1
20-Jul H-6-B 1	13-Jun F-9-A 1	19-Jun H-4-D 2	26-Jun H-6-A 1

04667

10-Jul E-10-A 6 10-Jul I-6-C 2 13-Jun F-11-C 1 19-Jun H-6-A 1

0466910-Jul E-10-A 1 20-Jul J-6-B 2 19-Jun C-5-B 6 19-Jun I-6-D 17
10-Jul H-6-A 5 25-Jul H-5-A 1 19-Jun H-4-D 2 26-Jun H-6-A 2
20-Jul H-6-B 2 13-Jun J-5-D 5 19-Jun H-6-A 9 26-Jun I-6-D 5**04671**10-Jul E-10-A 1 25-Jul E-10-D 1 20-Jul J-6-B 1 19-Jun H-6-A 1
20-Jul F-10-B 2 20-Jul H-6-B 1**04681**

10-Jul E-10-A 1 10-Jul H-6-A 3 20-Jul F-10-B 1

0469713-Jun F-11-C 1 13-Jun H-6-A 1 19-Jun I-6-D 39 26-Jun H-6-A 6
13-Jun F-9-A 1 19-Jun H-4-D 6 26-Jun E-11-B 1 26-Jun I-6-D 17
13-Jun H-4-D 3 19-Jun H-6-A 13 26-Jun H-4-D 3**04698**10-Jul C-6-C 1 20-Jul B-6-D 2 20-Jul F-10-B 1 26-Jun I-6-D 1
10-Jul H-6-A 7**04700**10-Jul C-6-C 1 20-Jul H-6-B 1 26-Jun E-11-B 1 26-Jun H-6-A 4
10-Jul E-10-A 1**04794**

8-Aug B-7-C 1 8-Aug I-6-B 1 13-Jun H-6-A 1

049491-Aug B-5-A 4 20-Jul J-6-B 1 26-Jun E-11-B 1 20-May B-7-A 2
1-Aug E-10-D 1 25-Jul H-5-A 3 20-May B-7-A 2**05017**

8-Aug I-6-B 1

05040

20-Jul J-6-B 1 13-Jun J-5-D 2 19-Jun H-4-D 1 25-Jul H-5-A 5

051561-Aug E-10-D 1 15-Aug C-6-C 3 19-Jun H-4-D 5 26-Jun H-4-D 1
1-Aug H-6-A 1 10-Jul J-3-B 1 19-Jun I-6-D 1 18-Sep C-6-C 21
8-Aug I-6-B 3 25-Jul H-5-B 4 26-Jun E-11-B 1 23-Sep C-6-C 8

05159

1-Aug	B-5-A	4	10-Jul	E-10-A	1	13-Jun	F-9-A	5	19-Jun	I-6-D	2
1-Aug	E-10-D	4	20-Jul	H-6-B	1	13-Jun	H-4-D	10	26-Jun	E-11-B	9
1-Aug	H-6-A	4	20-Jul	J-6-B	4	13-Jun	H-6-A	6	26-Jun	H-6-A	3
1-Aug	I-5-B	1	25-Jul	E-10-D	1	13-Jun	J-5-D	1	10-May	C-6-C	8
8-Aug	B-7-C	1	25-Jul	H-5-B	7	19-Jun	C-5-B	5	10-May	F-10-A	1
8-Aug	H-4-B	1	25-Jul	H-5-B	3	19-Jun	H-4-D	5	5-Sep	D-6-C	3
15-Aug	F-9-A	1	13-Jun	F-11-C	4	19-Jun	H-6-A	1	5-Sep	H-3-A	1

05160

10-Jul	H-6-A	1	13-Jun	F-11-C	1	13-Jun	J-5-D	1	19-Jun	I-6-D	1
20-Jul	H-6-B	1	13-Jun	F-9-A	1	19-Jun	H-4-D	1			

05226

1-Aug	B-5-A	3	15-Aug	H-4-D	1	1-May	F-10-B	2	10-May	C-6-C	1
1-Aug	E-10-D	3	20-Jul	H-6-B	2	10-May	B-7-B	2	10-May	F-10-A	3
15-Aug	F-9-A		13-Jun	H-6-A	1						

05228

25-Jul	H-5-B	1	10-Jul	E-10-A	2	20-Jul	H-6-B	1	25-Jul	H-5-B	1
26-Jun	H-4-D	1	20-Jul	H-6-A	1	20-Jul	J-6-B	2	26-Jun	H-4-D	1

05241

1-Aug	E-10-D	1	10-Jul	E-10-A	1	26-Jun	E-11-B	1	20-Jul	F-10-B	1
8-Aug	B-7-C	2	20-Jul	F-10-B	1	10-Jul	E-10-A	1	26-Jun	E-11-B	1

05250

10-Jul	E-10-A	1	20-Jul	F-10-B	2	26-Jun	H-4-D	1
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05378

13-Jun	J-5-D	1
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05464

20-Jul	H-6-B	1
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05465

20-Jul	J-6-B	1
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05518

1-Aug	E-10-D	5	19-Jun	C-5-B	1	19-Jun	I-6-D	1	26-Jun	I-6-D	4
20-Jul	J-6-B	3									

05533

19-Jun	C-5-B	1	26-Jun	I-6-D	1
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05552

20-Jul	H-6-A	1
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05556

26-Jun	E-11-B	1
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05579

20-Jul	H-6-A	1
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05622

5-Sep D-6-C 1 5-Sep H-6-A 1

06053

10-Jun H-6-A 1 10-Jun J-3-B 2 19-Jun I-6-D 2

06236

11-Jul H-6-A 1

0623710-Jul H-6-A 1 11-Jul H-6-A 2 25-Jul H-5-A 1 5-Sep H-3-A 1
10-Jul I-6-C 1 11-Jul H-6-B 1 5-Sep D-6-C 1**06240**

10-May F-10-A 1

06255

19-Jun F-11-C 1 19-Jun H-6-A 1

0626113-Jun H-4-D 1 13-Jun J-5-D 3 19-Jun H-4-D 1 26-Jun H-4-D 1
13-Jun H-6-A 1 19-Jun C-5-B 2 19-Jun I-6-D 1**06273**1-Aug H-6-A 2 15-Aug H-4-D 3 20-Jul J-6-B 2 26-Jun E-11-B 10
15-Aug F-9-A 3 20-Jul F-10-B 2 25-Jul E-10-D 4 26-Jun H-4-D 2**06322**1-Aug B-5-A 1 19-Jun C-5-B 3 19-Jun H-6-A 5 10-May B-7-B 3
10-Jul E-10-A 2 19-Jun H-4-D 1**06331**20-Jul H-6-B 1 26-Jun E-11-B 1 10-May B-7-B 1 20-May B-7-A 2
13-Jun H-4-D 1 1-May C-6-C 1 10-May C-6-C 2**06344**

8-Aug I-6-B 1 15-Aug F-9-A 5 15-Aug H-6-A 2

06386

1-Aug H-6-A 1

06419

10-Jul H-6-A 1 20-Jul H-6-A 1 26-Jun H-6-A 1 20-May D-10-A 1

06486

8-Aug I-6-B 1 20-Jul H-6-B 1 1-May F-10-B 1 1-May H-7-A 1

06584

1-Aug H-6-A 2 10-Jul J-3-B 2 1-May H-7-A 1 10-May H-4-B 2

06586

15-Aug F-9-A 1 20-Jul H-6-A 2 20-Jul J-6-B 8 20-May B-7-A 1

06588

8-Aug	B-7-C	1	20-Jul	H-6-B	1	25-Jul	E-10-D	1	10-May	I-6-A	2
10-Jul	H-6-A	1	20-Jul	J-6-B	3	10-May	F-10-A	3	20-May	D-10-A	1
20-Jul	H-6-A	1									

06590

1-Aug	H-6-A	10
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06597

1-Aug	H-6-A	5	26-Jun	H-4-D	4	26-Jun	I-6-D	3	10-May	H-4-B	2
13-Jun	H-6-A	23	26-Jun	H-6-A	1						

06599

20-Jul	F-10-B	1	13-Jun	I-6-A	1	26-Jun	E-11-B	1	1-May	F-10-B	1
25-Jul	E-10-D	1									

06620

10-Jul	J-3-B	4	1-May	C-6-C	10	1-May	H-7-A	16	10-May	C-6-C	2
20-Jul	H-6-A	1	1-May	H-6-C	2	1-May	I-6-B	10	20-May	D-10-A	1

06621

1-Aug	H-6-A	2	20-Jul	F-10-B	3	20-Jul	H-6-B	2	25-Jul	E-10-D	3
20-Jul	B-6-D	1	20-Jul	H-6-A	3	20-Jul	J-6-B	4			

06640

1-Aug	B-5-A	2	8-Aug	I-6-B	5	19-Jun	H-4-D	1	20-May	B-6-D	3
1-Aug	E-10-D	8	8-Aug	I-6-D	2	10-May	B-7-B	1	20-May	B-7-A	3
1-Aug	H-6-A	1	15-Aug	H-4-D	1	10-May	C-6-C	4	20-May	D-10-A	7
1-Aug	I-5-B	1	25-Jul	E-10-D	1	10-May	F-10-A	1	20-May	G-7-B	1
8-Aug	B-7-C	1	25-Jul	E-10-D	1	10-May	H-4-B	3	20-May	J-5-C	1
8-Aug	H-4-B	2	25-Jul	H-5-B	1						

06654

1-Aug	H-6-A	5	15-Aug	H-6-A	2	5-Jun	F-9-A		26-Jun	I-6-D	1
15-Aug	F-9-A	6	25-Jul	E-10-D	1	4			20-May	B-7-A	1
15-Aug	H-4-D	7	25-Jul	H-5-A	3	13-Jun	H-6-A	20			

06655

15-Aug	C-6-C	1
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06667

10-May	C-6-C	2	10-May	F-10-A	4
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06677

8-Aug	I-6-B	1	20-May	D-10-A	1
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06678

20-May	B-7-A	1	20-May	G-7-B	1
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06720

19-Jun	C-5-B	14	19-Jun	H-6-A	8	26-Jun	E-11-B	18	26-Jun	H-6-A	6
19-Jun	H-4-D	6	19-Jun	I-6-D	2	26-Jun	H-4-D	4	26-Jun	I-6-D	1

06724

19-Jun	C-5-B	2	19-Jun	I-6-D	9	26-Jun	H-6-A	7	26-Jun	I-6-D	14
19-Jun	H-4-D	7	26-Jun	H-4-D	3						

06726

15-Aug	H-6-A	2	13-Jun	F-11-C	2	13-Jun	H-4-D	2	13-Jun	J-5-D	1
10-Jul	J-3-B	1	13-Jun	F-9-A	1	13-Jun	H-6-A	1	19-Jun	I-6-D	11
25-Jul	H-5-A	1									

06729

15-Aug	C-6-C	2	19-Jun	C-5-B	4	26-Jun	H-6-A	2	5-Sep	H-3-A	5
13-Jun	H-4-D	20	19-Jun	H-4-D	4	5-Sep	C-5-B	2	5-Sep	H-6-A	2
13-Jun	H-6-A	10	19-Jun	H-6-A	8	5-Sep	D-6-C	7	5-Sep	J-5-D	4
13-Jun	J-5-D	25									

06735

1-Aug	H-6-A	1	20-Jul	H-6-B	1	25-Jul	A-7-A	1	26-Jun	I-6-D	1
1-Aug	I-5-B	1	20-Jul	J-6-B	1	25-Jul	H-5-B	4			

06739

5-Jun	H-6-A	1	13-Jun	H-6-A	6	13-Jun	J-5-D	9	19-Jun	H-4-D	1
13-Jun	H-4-D	8									

06740

1-Aug	I-5-B		15-Aug	H-4-D	4	13-Jun	F-9-A	11	19-Jun	H-6-A	3
1			15-Aug	H-6-A	1	13-Jun	H-4-D	3	19-Jun	I-6-D	6
8-Aug	B-7-C	1	25-Jul	E-10-D	1	13-Jun	H-6-A	8	26-Jun	E-11-B	2
8-Aug	H-4-B	5	25-Jul	H-5-A	2	13-Jun	J-5-D	3	26-Jun	I-6-D	1
8-Aug	I-6-B		5-Jun	F-9-A	1	19-Jun	C-5-B	4	5-Sep	C-5-B	3
2			13-Jun	F-11-C	8	19-Jun	H-4-D	2	5-Sep	D-6-C	3
8-Aug	I-6-D								5-Sep	H-6-A	1
1											

06753

1-Aug	H-6-A	3	15-Aug	H-4-D	1	25-Jul	H-5-B	5	19-Jun	I-6-D	1
1-Aug	I-5-B		25-Jul	E-10-D	1	13-Jun	F-9-A	3	10-May	I-6-A	2
6			25-Jul	H-5-A	4	13-Jun	H-4-D	1	20-May	G-7-B	2

06754

1-Aug	B-5-A	2	1-May	F-10-B	1	10-May	F-10-A	1	10-May	H-4-B	6
8-Aug	H-4-B	1	10-May	C-6-C	1						

06763

13-Jun	F-9-A	1	13-Jun	J-5-D	3	19-Jun	I-6-D	2	19-May	H-6-D	2
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06796

15-Aug	H-4-D	2	13-Jun	F-9-A	1	20-May	J-5-C	1	5-Sep	H-3-A	5
5-Jun	F-9-A	1	13-Jun	H-4-D	5	5-Sep	C-5-B	7	5-Sep	H-6-A	6
13-Jun	F-11-C	9	13-Jun	H-6-A	4	5-Sep	D-6-C	2	5-Sep	J-5-D	3
									18-Sep	C-6-C	4

06798

20-Jul	H-6-A	1	26-Jun	E-11-B	2
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06819

13-Jun F-11-C 4 19-Jun C-5-B 1 10-May F-10-A 9 20-May D-10-A 4

06822

10-May H-4-B 1

068265-Jun F-9-A 3 13-Jun F-9-A 2 13-Jun H-6-A 3 26-Jun E-11-B 6
13-Jun F-11-C 10 13-Jun H-4-D 16 13-Jun J-5-D 9 26-Jun H-4-D 1**06836**

1-May C-6-C 1

06842

10-Jul H-6-A 2 25-Jul E-10-D 1

068438-Aug H-4-B 1 20-Jul H-6-B 1 25-Jul E-10-D 1 25-Jul H-5-A 5
10-Jul H-6-A 3 20-Jul J-6-B 2 25-Jul H-5-A 5**06844**1-Aug B-5-A 2 8-Aug I-6-D 2 25-Jul H-5-B 1 10-May H-4-B 2
8-Aug B-7-C 1 20-Jul J-6-B 1 1-May C-6-C 1 20-May J-5-C 1
8-Aug I-6-B 2 25-Jul H-5-A 6 10-May C-6-C 2**06885**1-Aug H-6-A 2 8-Aug I-6-D 1 25-Jul H-5-A 1 10-May F-10-A 1
1-Aug I-5-B 1 15-Aug C-6-C 2 1-May C-6-C 1 20-May D-10-A 1
8-Aug H-4-B 1 15-Aug H-6-A 1 10-May C-6-C 1 20-May J-5-C 1
8-Aug I-6-B 2 20-Jul H-6-B 1**06894 a**

1-Aug H-6-A 1

0691213-Jun F-9-A 1 19-Jun H-4-D 1 19-Jun H-6-A 1 26-Jun E-11-B 3
19-Jun C-5-B 3**06941**15-Aug H-4-D 4 25-Jul E-10-D 1 13-Jun J-5-D 15 5-Sep D-6-C 8
10-Jul E-10-A 6 25-Jul H-5-A 1 19-Jun H-4-D 1 5-Sep H-3-A 3
10-Jul H-6-A 9 25-Jul H-5-B 1 19-Jun H-4-D 1 5-Sep H-6-A 5
10-Jul J-3-B 13 5-Jun B-6-B 5 19-Jun I-6-D 5 5-Sep J-5-D 3
20-Jul B-6-D 1 5-Jun F-9-A 1 26-Jun E-11-B 2 18-Sep F-11-C 2
20-Jul F-10-B 4 13-Jun F-11-C 18 26-Jun H-6-A 11 18-Sep H-7-D 6
20-Jul H-6-B 10 13-Jun H-4-D 7 26-Jun I-6-D 7 23-Sep H-7-D 2
20-Jul J-6-B 15 13-Jun H-6-A 29 5-Sep C-5-B 10**06963**

25-Jul E-10-D 2 25-Jul H-5-A 2 20-May B-7-A 1 20-May D-10-A 1

06964

20-May D-10-A 1

06965

10-Jul H-6-A 6 10-Jul J-3-B 1 26-Jun H-6-A 2 26-Jun I-6-D 2

06966

10-Jul H-6-A 2 10-Jul J-3-B 1 25-Jul H-5-A 1 10-May F-10-A 4

06974 a

1-Aug H-6-A 1

0698210-Jul E-10-A 14 25-Jul E-10-D 4 26-Jun I-6-D 1 5-Sep D-6-C 1
20-Jul F-10-B 5 26-Jun E-11-B 3 5-Sep C-5-B 2 5-Sep H-3-A 1**06987**1-Aug B-5-A 1 8-Aug I-6-D 1 20-Jul J-6-B 3 25-Jul H-5-A 2
1-Aug H-6-A 1 20-Jul H-6-B 2**07009**1-Aug H-6-A 1 19-Jun H-4-D 1 26-Jun E-11-B 6 26-Jun H-6-A 10
8-Aug B-7-C 1 19-Jun I-6-D 1 26-Jun H-4-D 5 26-Jun I-6-D 3
13-Jun J-5-D 1**07046**1-Aug B-5-A 7 20-Jul J-6-B 4 1-May C-6-C 2 5-Sep H-3-A 1
8-Aug I-6-D 1 25-Jul A-7-A 2 10-May C-6-C 2 5-Sep H-6-A 2
20-Jul F-10-B 2 25-Jul E-10-D 3 5-Sep D-6-C 3 5-Sep J-5-D 3
20-Jul H-6-B 4 25-Jul H-5-A 13**07048**

19-May H-6-D 1

070581-Aug B-5-A 6 20-Jul H-6-B 4 25-Jul E-10-D 2 5-Sep H-6-A 1
20-Jul F-10-B 1 20-Jul J-6-B 5 25-Jul H-5-A 4 5-Sep J-5-D 1**07114**

1-Aug B-5-A 2 20-Jul J-6-B 3 20-Jul J-6-B 8

07136

15-Aug H-6-A 1 10-May H-4-B 1 5-Sep C-5-B 5 5-Sep H-6-A 1

07146

5-Sep J-5-D 1

07147

5-Sep C-5-B 1 5-Sep H-3-A 1

07159

1-Aug	H-6-A	2	20-Jul	H-6-A	1	13-Jun	H-6-A	14	26-Jun	H-6-A	8
15-Aug	H-4-D	1	20-Jul	H-6-B	2	19-Jun	H-4-D	1	26-Jun	I-6-D	2
15-Aug	H-6-A	1	20-Jul	J-6-B	2	26-Jun	E-11-B	4	5-Sep	C-5-B	1
10-Jul	H-6-A	6	13-Jun	H-4-D	3	26-Jun	H-4-D	2	5-Sep	D-6-C	1
20-Jul	F-10-B	1									

07169

20-Jul	H-6-A	3	1-Aug	B-5-A	2
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07196

20-Jul	H-6-A	3	8-Aug	I-6-B		20-Jul	F-10-B	6	25-Jul	H-5-A	4
1-Aug	B-5-A	2	1			20-Jul	H-6-B	2	26-Jun	E-11-B	10
1-Aug	E-10-D	2	15-Aug	F-9-A	3	20-Jul	J-6-B	2	26-Jun	H-4-D	3
1-Aug	H-6-A	5	10-Jul	E-10-A	8	25-Jul	A-7-A	1	26-Jun	H-6-A	6
1-Aug	I-5-B	2	10-Jul	H-6-A	3	25-Jul	E-10-D	25	26-Jun	I-6-D	2
8-Aug	B-7-C	1	10-Jul	J-3-B	4						
			20-Jul	B-5-A	2						

07197

8-Aug	B-7-C	1	13-Jun	H-6-A	1	18-Sep	C-6-C	1	18-Sep	I-6-D	1
13-Jun	F-11-C	2	19-Jun	I-6-D	1	18-Sep	I-6-D	1			

07292

20-Jul	B-6-D	1	13-Jun	F-9-A	1
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07307

20-Jul	H-6-A	1	25-Jul	H-5-A	2
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07388

15-Aug	F-9-A	2	5-Sep	C-5-B	3	5-Sep	H-6-A	2	5-Sep	J-5-D	1
10-Jul	J-3-B	1	5-Sep	D-6-C	1						

07390

19-Jun	C-5-B	1	26-Jun	H-4-D	1
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07399

15-Aug	F-9-A	6	15-Aug	H-6-A	1	1-May	I-6-B	
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07414

1-Aug	B-5-A	1	19-Jun	C-5-B	1	26-Jun	E-11-B	1	23-Sep	C-6-C	1
8-Aug	I-6-B	1	19-Jun	I-6-D	1	26-Jun	H-4-D	1			

07416

1-Aug	H-6-A	6	20-Jul	H-6-A	2	25-Jul	E-10-D	1	26-Jun	H-6-A	2
10-Jul	J-3-B	7	20-Jul	H-6-B	4	25-Jul	H-5-B	1	5-Sep	D-6-C	1
20-Jul	B-6-D	1	20-Jul	J-6-B	3	26-Jun	H-4-D	1	5-Sep	H-6-A	1
									18-Sep	C-6-C	1

07430

10-Jul	I-6-C	1	25-Jul	A-7-A	1	25-Jul	E-10-D	1	25-Jul	H-5-B	5
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07440

1-Aug	I-5-B	2	20-Jul	J-6-B	1	13-Jun	H-6-A	1	19-Jun	I-6-D	1
8-Aug	B-7-C	2	25-Jul	H-5-B	2	13-Jun	J-5-D	4	26-Jun	E-11-B	8
8-Aug	I-6-B	2	13-Jun	F-11-C	1	19-Jun	C-5-B	8	26-Jun	H-4-D	3
15-Aug	H-4-D	3	13-Jun	F-9-A	1	19-Jun	H-4-D	2	26-Jun	H-6-A	9
10-Jul	E-10-A	2	13-Jun	H-4-D	1	19-Jun	H-6-A	5	26-Jun	I-6-D	2
10-Jul	J-3-B	1									

07445

5-Jun	B-6-B	2	26-Jun	H-6-A	1	26-Jun	I-6-D	1
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07474

26-Jun	H-4-D	2
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07645

5-Jun	F-9-A	1	13-Jun	F-9-A	1	26-Jun	E-11-B	4	26-Jun	H-6-A	1
13-Jun	F-11-C	3									

07647

1-Aug	E-10-D	1	25-Jul	E-10-D	1	13-Jun	F-11-C	1	10-May	H-4-B	1
1-Aug	H-6-A	1	5-Jun	F-9-A	3	26-Jun	E-11-B	1			

07648

1-Aug	E-10-D	1	20-Jul	F-10-B	8	25-Jul	E-10-D	5	13-Jun	H-4-D	1
1-Aug	H-6-A	2	20-Jul	J-6-B	1	25-Jul	H-5-B	4	19-May	H-6-D	1
15-Aug	F-9-A	1									

07662

13-Jun	H-4-D	1	13-Jun	J-5-D	6	19-Jun	F-11-C	1	19-Jun	H-6-A	5
13-Jun	H-6-A	1	19-Jun	C-5-B	4	19-Jun	H-4-D	2	19-Jun	I-6-D	3

07663

19-Jun	I-6-D	1	26-Jun	E-11-B	2	26-Jun	H-4-D	3	26-Jun	H-6-A	2
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07665

10-Jul	E-10-A	2	10-Jul	H-6-A	1	26-Jun	E-11-B	1
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07670

5-Sep	D-6-C	1	18-Sep	F-11-C	6	23-Sep	C-6-C	6	23-Sep	H-7-D	8
5-Sep	J-5-D	1	18-Sep	H-7-D	18	23-Sep	F-11-C	8	23-Sep	I-6-D	5
18-Sep	C-6-C	12	18-Sep	I-6-D	2						

07687

1-Aug	I-5-B	1	20-Jul	F-10-B	1	25-Jul	H-5-A	8	1-May	I-6-B	
8-Aug	H-4-B	1	20-Jul	H-6-B	2	26-Jun	H-6-A	2	2		
10-Jul	E-10-A	1	20-Jul	J-6-B	3	1-May	C-6-C	4	10-May	C-6-C	1
10-Jul	H-6-A	3	25-Jul	E-10-D	6	1-May	F-10-B	2	10-May	F-10-A	2
10-Jul	J-3-B	1									

07698

26-Jun	E-11-B	2	26-Jun	H-4-D	1	26-Jun	H-6-A	1
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07701

5-Jun F-9-A 1 19-Jun C-5-B 4 19-Jun H-6-A 2 19-Jun I-6-D 1

077041-Aug B-5-A 1 20-Jul B-6-D 2 20-Jul H-6-B 1 25-Jul E-10-D 2
10-Jul I-6-C 2 20-Jul F-10-B 1 25-Jul A-7-A 2 25-Jul H-5-A 1**07709**

1-Aug E-10-D 1 8-Aug B-7-C 1 10-Jul I-6-C 1 20-May J-5-C 1

0771510-Jul C-6-C 21 20-Jul B-6-D 1 19-Jun H-6-A 1 10-May C-6-C 3
10-Jul E-10-A 7 19-Jun C-5-B 2 26-Jun E-11-B 4 10-May F-10-A 1**07746**10-Jul E-10-A 2 25-Jul E-10-D 1 13-Jun J-5-D 2 19-Jun I-6-D 11
10-Jul H-6-A 1 13-Jun F-11-C 3 19-Jun C-5-B 5 26-Jun E-11-B 4
10-Jul I-6-C 4 13-Jun F-9-A 2 19-Jun F-11-C 6 26-Jun H-6-A 3
20-Jul F-10-B 1 13-Jun H-4-D 2 19-Jun H-4-D 5 26-Jun I-6-D 3
25-Jul A-7-A 1 13-Jun H-6-A 2 19-Jun H-6-A 4**07757**25-Jul H-9-A 4 9-May F-10-A 2 10-May C-6-C 1 10-May F-10-A 2
13-Jun F-11-C 1**07758**

20-May B-7-A 1

07764

10-Jul I-6-C 1 20-May J-5-B 2

07767

11-Jul I-6-C 1

07786

10-Jul E-10-A 1 25-Jul H-5-B 1

07787

20-Jul F-10-B 2

07790

10-Jul E-10-A 1

077961-Aug B-5-A 1 1-Aug H-9-A 2 10-Jul H-6-A 1 19-Jul H-9-A 1
1-Aug H-6-A 1 8-Aug H-4-B 1**07802**

19-Jun F-11-C 1

07809

10-Jul I-6-C 3

07821

15-Aug H-6-A 1 10-May H-9-B 1

07824

1-Aug	B-5-A	2	10-Jul	I-6-C	2	25-Jul	E-10-D	1	26-Jun	E-11-B	1
8-Aug	H-4-B	1	20-Jul	H-6-B	1	25-Jul	H-5-A	5	26-Jun	H-4-D	1
8-Aug	I-6-D	1	20-Jul	J-6-B	3	25-Jul	H-5-B	5	10-May	C-6-C	1
10-Jul	E-10-A	1	25-Jul	A-7-A	2	19-Jun	H-4-D	1			

07825

10-Jul	I-6-C	1	20-Jul	F-10-B	1	13-Jun	J-5-D	1	20-May	H-6-D	1
20-Jul	B-6-D	2	20-Jul	J-6-B	1	20-May	B-6-D	1			

07827

13-Jun	F-11-C	1	26-Jun	E-11-B	2	26-Jun	I-6-D	1	10-May	F-10-A	1
19-Jun	H-6-A	1									

07828

12-Jun	H-9-C	1	20-Jun	H-8-C	2	26-Jun	H-8-C	2	26-Jun	H-9-D	2
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07855

19-Jul	D-5-A	1	10-May	I-6-A	1						
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07870

5-Jun	B-7-B	1	13-Jun	B-7-B	3	19-Jun	I-6-C	2	20-May	H-6-B	2
5-Jun	H-6-B	1	19-Jun	H-6-A	1	26-Jun	H-6-A	1			

07871

30-Apr	B-7-B	2	1-May	F-10-B	5	10-May	F-10-A	2	20-May	B-7-A	12
5-Jun	F-9-A	1	1-May	H-7-A	1	10-May	H-4-B	1	20-May	D-10-A	20
5-Jun	H-6-A	1	10-May	B-7-B	1	20-May	B-6-D	8	20-May	J-5-C	4
1-May	C-6-C	1	10-May	C-6-C	2						

07873

10-Jul	B-7-B	1	12-Jun	B-7-C	1	13-Jun	I-6-C	2	26-Jun	F-10-B	3
10-Jul	F-10-B	3	12-Jun	F-10-B	2	19-Jun	F-10-B	5	26-Jun	H-6-A	2
10-Jul	H-6-A	1	13-Jun	B-7-B	2	19-Jun	H-4-D	3	26-Jun	H-6-B	1
10-Jul	H-6-B	1	13-Jun	F-10-B	2	19-Jun	H-6-A	3	26-Jun	I-6-C	2
10-Jul	I-6-C	2	13-Jun	H-6-A	9	19-Jun	H-6-B	6	10-May	B-7-B	1
10-Jul	I-6-D	1	13-Jun	H-6-B	3	19-Jun	I-6-C	4	10-May	H-6-B	1

07885

15-Aug	C-6-C	1	5-Jun	B-7-B	1	19-Jun	C-5-B	1	19-Jun	I-6-C	2
10-Jul	B-7-B	1	13-Jun	F-11-C	1	19-Jun	F-10-B	2	26-Jun	B-7-B	1
10-Jul	F-10-B	1	13-Jun	F-9-A	1	19-Jun	F-11-C	1	26-Jun	F-10-B	2
10-Jul	H-6-A	2	13-Jun	H-6-B	1	19-Jun	H-4-D	1	26-Jun	H-4-D	1
10-Jul	I-6-C	2	19-Jun	B-7-B	1						

07894

25-Jul H-9-A 1

07895

10-May F-10-A 2 20-May D-10-A 1 5-Sep C-5-B 1 5-Sep D-6-C 2

07896

1-Aug E-10-D 1 25-Jul E-10-D 1 1-May H-7-A 1 20-May J-5-C 1
1-Aug I-5-B 1 25-Jul H-5-B 1 1-May I-6-B 1

07902

10-Jul H-6-A 1 19-Jun C-5-B 1 10-May C-6-C 1

07903

10-Jul	E-10-A	3	20-Jul	F-10-B	3	13-Jun	F-11-C	1	19-Jun	H-6-A	1
10-Jul	J-3-B	1	20-Jul	H-6-A	1	19-Jun	I-6-D	1	26-Jun	E-11-B	3
20-Jul	B-6-D	1	20-Jul	J-6-B	1	19-Jun	C-4-D	2	26-Jun	H-4-D	1
									26-Jun	H-6-A	3

07904

1-Aug	B-5-A	1	20-Jul	B-6-D	4	25-Jul	H-5-B	1	19-Jun	C-4-D	2
1-Aug	H-6-A	1	20-Jul	F-10-B	11	13-Jun	H-6-A	1	19-Jun	C-5-B	1
1-Aug	I-5-B	1	20-Jul	H-6-A	8	13-Jun	F-11-C	1	26-Jun	E-11-B	5
10-Jul	E-10-A	20	20-Jul	J-6-B	2	19-Jun	I-6-D	1	26-Jun	H-4-D	3
10-Jul	H-6-A	10	25-Jul	A-7-A	1	19-Jun	H-4-D	3	26-Jun	H-6-A	5
10-Jul	J-3-B	1	25-Jul	E-10-D	3	19-Jun	H-6-A	2	26-Jun	I-6-D	4

07906

8-Aug	B-7-C	1	10-Jul	H-6-A	3	20-Jul	H-6-A	5	25-Jul	E-10-D	3
10-Jul	E-10-A	8	20-Jul	F-10-B	6	20-Jul	J-6-B	1	26-Jun	H-6-A	2

07907

1-Aug	H-6-A	1	20-Jul	F-10-B	13	13-Jun	F-11-C	2	19-Jun	H-6-A	1
10-Jul	E-10-A	14	20-Jul	H-6-A	9	19-Jun	C-5-B	1	19-Jun	F-9-A	1
10-Jul	H-6-A	8	20-Jul	J-6-B	2	19-Jun	I-6-D	1	26-Jun	E-11-B	7
20-Jul	B-6-D	4	25-Jul	E-10-D	5	19-Jun	C-4-D	2			

07915

1-Aug	B-5-A	1	15-Aug	H-6-A	3	15-Aug	H-6-A	3	26-Jun	H-4-D	2
1-Aug	E-10-D	1	10-Jul	H-6-A	1	10-Jul	H-6-A	1	26-Jun	H-6-A	5
1-Aug	H-6-A	5	10-Jul	J-3-B	1	10-Jul	J-3-B	1	26-Jun	I-6-D	7
1-Aug	I-5-B	1	20-Jul	F-10-B	1	20-Jul	F-10-B	1	1-May	H-7-A	1
8-Aug	H-4-B	2	20-Jul	H-6-B	3	20-Jul	H-6-B	3	1-May	I-6-B	1
8-Aug	I-6-B	1	20-Jul	J-6-B	2	20-Jul	J-6-B	2	10-May	C-6-C	2
8-Aug	I-6-D	1	25-Jul	E-10-D	1	25-Jul	E-10-D	1	10-May	I-6-A	2
15-Aug	C-6-C	1	25-Jul	H-5-A	25	25-Jul	H-5-A	25	20-May	D-10-A	2
15-Aug	H-4-D	3	13-Jun	F-11-C	6	13-Jun	F-11-C	6	20-May	J-5-C	2

07917

13-Jun H-6-A 2 13-Jun J-5-D 7 10-May I-6-A 1 20-May B-6-D 1

07919

13-Jun F-11-C 2

07920

1-Aug	I-5-B	1	20-Jul	J-6-B	20	26-Jun	H-6-A	6	5-Sep	H-3-A	6
15-Aug	C-6-C	6	26-Jun	E-11-B	2	26-Jun	I-6-D	9	5-Sep	H-6-A	1
15-Aug	H-4-D	6	26-Jun	H-4-D	16	5-Sep	C-5-B	1	5-Sep	J-5-D	7
15-Aug	H-6-A	16									

07922

20-Jul	B-6-D	2	25-Jul	E-10-D	4	10-May	B-7-B	1	10-May	I-6-A	1
20-Jul	F-10-B	3	26-Jun	E-11-B	2	10-May	C-6-C	1	20-May	B-7-A	3
25-Jul	A-7-A	1	1-May	F-10-B	9	10-May	F-10-A	6	20-May	D-10-A	3

07924

15-Aug	C-6-C	1	10-Jul	H-6-A	1	13-Jun	F-11-C	9	26-Jun	E-11-B	12
10-Jul	E-10-A	6	20-Jul	H-6-B	2	13-Jun	F-9-A	1			

07926

1-Aug	H-6-A	1									
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07929

25-Jul	A-7-A	1	26-Jun	E-11-B	1	10-May	C-6-C	1			
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07930

30-Apr	B-7-B	1	10-Jul	E-10-A	2	25-Jul	E-10-D	5	26-Jun	E-11-B	1
1-Aug	E-10-D	3	20-Jul	F-10-B	1	25-Jul	H-5-A	1	20-May	D-10-A	2

07931

1-Aug	B-5-A	5	15-Aug	H-6-A	1	25-Jul	E-10-D	2	1-May	C-6-C	1
1-Aug	E-10-D	8	20-Jul	B-6-D	3	13-Jun	F-9-A	1	10-May	C-6-C	1
1-Aug	H-6-A	1	20-Jul	F-10-B	9	13-Jun	H-4-D	1	20-May	B-6-D	1
8-Aug	B-7-C	2	20-Jul	H-6-B	1	19-Jun	H-4-D	1	20-May	B-7-A	1
8-Aug	I-6-B	2	25-Jul	A-7-A	1	26-Jun	E-11-B	1	20-May	D-10-A	1

07936

13-Jun	F-9-A	1	13-Jun	H-4-D	1	10-May	B-7-B	1			
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07937

30-Apr	B-7-B	1	8-Aug	B-7-C	2						
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07951

1-Aug	B-5-A	1	8-Aug	I-6-D	1	25-Jul	E-10-D	1	10-May	F-10-A	7
1-Aug	H-6-A	3	15-Aug	H-4-D	1	13-Jun	F-9-A	2	10-May	H-4-B	1
1-Aug	I-5-B	4	15-Aug	H-6-A	2	13-Jun	J-5-D	2	20-May	J-5-C	1
8-Aug	B-7-C	1									

07957

26-Jun	H-6-A	1									
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07974

8-Aug	I-6-D	1									
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07975

1-Aug	B-5-A	6	20-Jul	F-10-B	1	25-Jul	A-7-A	1	26-Jun	E-11-B	1
1-Aug	E-10-D	1	20-Jul	H-6-B	1	25-Jul	H-5-A	1			

07983

10-Jul	E-10-A	4	20-Jul	H-6-B	1	13-Jun	J-5-D	2	19-Jun	I-6-D	3
10-Jul	H-6-A	15	20-Jul	J-6-B	1	19-Jun	C-5-B	3	26-Jun	H-4-D	5
10-Jul	J-3-B	1	25-Jul	E-10-D	1	19-Jun	H-4-D	1	26-Jun	H-6-A	5
20-Jul	F-10-B	1	25-Jul	H-5-A	4	19-Jun	H-6-A	2	26-Jun	I-6-D	17

07994

1-Aug	B-5-A	1	20-Jul	H-6-B	9	13-Jun	F-9-A	4	1-May	F-10-B	3
1-Aug	E-10-D	6	20-Jul	J-6-B	13	13-Jun	H-4-D	23	10-May	C-6-C	1
1-Aug	I-5-B	3	25-Jul	E-10-D	2	13-Jun	H-6-A	11	10-May	F-10-A	5
8-Aug	I-6-B	5	25-Jul	H-5-A	15	13-Jun	J-5-D	17	10-May	H-4-B	3
15-Aug	C-6-C	1	5-Jun	F-9-A	2	19-Jun	H-4-D	8	10-May	I-6-A	25
10-Jul	H-6-A	5	5-Jun	H-6-A	3	19-Jun	I-6-D	7	20-May	J-5-C	5
20-Jul	F-10-B	7	13-Jun	F-11-C	4						

07995

1-Aug	I-5-B	2	20-May	B-6-D	2	20-May	B-7-A	4	20-May	D-10-A	14
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07998

20-Jul	H-6-B	1	20-Jul	J-6-B	2	25-Jul	H-5-A	2	26-Jun	I-6-D	1
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07999

8-Aug	B-7-C	2	20-Jul	F-10-B	3	13-Jun	H-4-D	1	19-Jun	H-6-A	1
15-Aug	F-9-A	5	13-Jun	F-11-C	12	19-Jun	F-9-A	2	26-Jun	E-11-B	11
10-Jul	E-10-A	10									

08005

1-Aug	I-5-B	1	10-Jul	E-10-A	1	13-Jun	H-6-A	1	19-Jun	I-6-D	3
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08007

1-Aug	H-6-A	1	13-Jun	F-11-C	5	13-Jun	J-5-D	1	10-May	F-10-A	1
8-Aug	I-6-B	1	13-Jun	H-4-D	1	19-Jun	I-6-D	1	10-May	I-6-A	2
15-Aug	F-9-A	1	13-Jun	H-6-A	1	26-Jun	I-6-D	1	20-May	D-10-A	1

08017

1-Aug	B-5-A	2	8-Aug	I-6-D	1	10-Jul	H-6-A	1	13-Jun	H-4-D	2
1-Aug	H-6-A	1	15-Aug	H-6-A	1	25-Jul	H-5-A	1	19-Jun	C-5-B	1

08022

20-Jul	J-6-B	1	19-Jun	I-6-D	1						
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08045.1

1-Aug	B-5-A	1	15-Aug	C-6-C	6	15-Aug	H-4-D	5	10-Jul	J-3-B	1
1-Aug	I-5-B	1	15-Aug	F-9-A	4	15-Aug	H-6-A	21	5-Sep	H-6-A	8
8-Aug	I-6-B	3									

08089

13-Jun H-4-D 4 13-Jun H-6-A 4 13-Jun J-5-D 12 19-Jun I-6-D 5

08090

1-Aug	B-5-A	22	8-Aug	I-6-B	4	10-Jul	J-3-B	2	25-Jul	E-10-D	81
1-Aug	E-10-D	34	8-Aug	I-6-D	1	20-Jul	F-10-B	91	25-Jul	H-5-A	182
1-Aug	H-6-A	46	15-Aug	H-4-D	1	20-Jul	H-6-B	146	26-Jun	H-4-D	1
1-Aug	I-5-B	6	10-Jul	E-10-A	38	20-Jul	J-6-B	80	5-Sep	H-6-A	2
8-Aug	B-7-C	1	10-Jul	H-6-A	19						

08098

15-Aug	C-6-C	1	15-Aug	H-4-D	5	20-May	D-10-A	1	5-Sep	D-6-C	1
15-Aug	F-9-A	3	13-Jun	F-11-C	1	5-Sep	C-5-B	1	23-Sep	C-6-C	1

08109

10-Jul E-10-A 1 19-Jun H-6-A 2

08111

19-Jun	C-5-B	10	19-Jun	I-6-D	1	26-Jun	H-4-D	1	26-Jun	H-6-A	9
19-Jun	H-6-A	1	26-Jun	E-11-B	6						

08121

8-Aug	I-6-B	3	15-Aug	H-6-A	16	13-Jun	J-5-D	3	19-Jun	I-6-D	1
15-Aug	H-4-D	3	13-Jun	H-4-D	4						

08129

8-Aug	H-4-B	1	13-Jun	H-4-D	1	19-Jun	H-4-D	6	26-Jun	H-4-D	2
15-Aug	C-6-C	2	13-Jun	H-6-A	2	19-Jun	H-6-A	2	26-Jun	H-6-A	1
15-Aug	H-6-A	1	13-Jun	J-5-D	5	19-Jun	I-6-D	6	26-Jun	I-6-D	1
13-Jun	F-11-C	2	19-Jun	C-5-B	10	26-Jun	E-11-B	1			

08131

8-Aug I-6-B 1 20-Jul J-6-B 1

08133

10-Jul	E-10-A	2	20-Jul	H-6-B	1	19-Jun	H-4-D	1	26-Jun	E-11-B	4
10-Jul	H-6-A	1	20-Jul	J-6-B	1	19-Jun	I-6-D	1	26-Jun	H-6-A	1
20-Jul	F-10-B	1	19-Jun	F-11-C	1						

08134

1-Aug	B-5-A	2	26-Jun	I-6-D	1	10-May	H-4-B	2	20-May	D-10-A	2
26-Jun	E-11-B	1	1-May	C-6-C	2	20-May	B-6-D	3	20-May	J-5-C	4
26-Jun	H-6-A	1	10-May	C-6-C	11	20-May	B-7-A	1			

08137

1-Aug	E-10-D	1	20-Jul	B-6-D	1	13-Jun	H-4-D	1	10-May	F-10-A	2
1-Aug	I-5-B	2	20-Jul	F-10-B	9	19-Jun	C-5-B	3	10-May	H-4-B	5
8-Aug	I-6-B	1	20-Jul	H-6-B	2	19-Jun	H-4-D	4	10-May	I-6-A	1
8-Aug	I-6-D	1	25-Jul	E-10-D	3	19-Jun	H-6-A	2	5-Sep	C-5-B	2
15-Aug	C-6-C	2	25-Jul	H-5-A	2	19-Jun	I-6-D	1	5-Sep	D-6-C	1
15-Aug	F-9-A	2	25-Jul	H-5-B	2	26-Jun	E-11-B	2	5-Sep	H-6-A	1
15-Aug	H-6-A	1	5-Jun	F-9-A	1	26-Jun	H-6-A	2	5-Sep	J-5-D	2
10-Jul	J-3-B	1	13-Jun	F-11-C	3	26-Jun	I-6-D	1			

08140

1-Aug	E-10-D	1	10-Jul	E-10-A	1	26-Jun	E-11-B	2	26-Jun	H-6-A	6
1-Aug	H-6-A	2	19-Jun	H-4-D	7	26-Jun	H-4-D	2	26-Jun	I-6-D	7
1-Aug	I-5-B	1									

08157

10-Jul	6	J-3-B	1	26-Jun	H-4-D	1
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08169

1-Aug	B-5-A	1	8-Aug	I-6-B	6	13-Jun	H-4-D	2	20-May	J-5-C	2
1-Aug	H-6-A	2	8-Aug	I-6-D	4	13-Jun	H-6-A	1	18-Sep	I-6-D	1
8-Aug	B-7-C	1	15-Aug	H-4-D	1	20-May	B-7-A	1			

08197

1-Aug	I-5-B	1	10-Jul	I-6-C	4	20-Jul	H-6-B	4	25-Jul	H-5-B	3
10-Jul	E-10-A	1	10-Jul	J-3-B	4	20-Jul	J-6-B	2	25-Jul	H-9-A	1
10-Jul	H-6-A	1	20-Jul	F-10-B	1	25-Jul	E-10-D	1			

08199

1-Aug	B-5-A	1	20-Jul	J-6-B	1
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08203

1-Aug	B-5-A	12	10-Jul	J-3-B	12	25-Jul	H-5-B	3	19-Jun	H-4-D	10
1-Aug	E-10-D	11	20-Jul	B-6-D	10	13-Jun	F-11-C	2	19-Jun	H-6-A	4
1-Aug	H-6-A	3	20-Jul	F-10-B	38	13-Jun	F-9-A	1	19-Jun	I-6-D	2
1-Aug	I-5-B	1	20-Jul	H-6-B	40	13-Jun	H-4-D	2	26-Jun	E-11-B	31
8-Aug	H-4-B	1	20-Jul	J-6-B	31	13-Jun	H-6-A	1	26-Jun	H-4-D	5
8-Aug	I-6-B	5	25-Jul	E-10-D	34	13-Jun	J-5-D	3	26-Jun	H-6-A	21
8-Aug	I-6-D	1	25-Jul	H-5-A	74	19-Jun	C-5-B	4	26-Jun	I-6-D	15
10-Jun	E-10-A	23									

08211

5-Jun	B-6-B	1	13-Jun	F-9-A	6	19-Jun	C-5-B	2	20-May	B-6-D	5
5-Jun	F-9-A	1	13-Jun	H-4-D	5	19-Jun	H-4-D	1	20-May	B-7-A	19
5-Jun	H-6-A	1	13-Jun	H-6-A	7	19-Jun	H-6-A	1	20-May	D-10-A	17
13-Jun	F-11-C	5	13-Jun	J-5-D	28	19-Jun	I-6-D	1	20-May	J-5-C	9

08214

8-Aug	B-7-C	6	10-Jul	H-6-A	5
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08230

8-Aug	I-6-B	1	25-Jul	H-5-A	19	13-Jun	J-5-D	7	26-Jun	H-4-D	18
10-Jul	E-10-A	1	25-Jul	H-5-B	12	19-Jun	H-4-D	1	26-Jun	H-6-A	22
10-Jul	H-6-A	6	13-Jun	F-9-A	1	19-Jun	H-6-A	1	26-Jun	I-6-D	25
10-Jul	J-3-B	19	13-Jun	H-4-D	9	19-Jun	I-6-D	6	5-Sep	D-6-C	1
20-Jul	J-6-B	27	13-Jun	H-6-A	3	26-Jun	E-11-B	3			

08231

1-Aug	B-5-A	1	8-Aug	I-6-B	1	13-Jun	H-4-D	1	26-Jun	H-6-A	1
1-Aug	E-10-D	2	15-Aug	H-6-A	1	13-Jun	J-5-D	4	26-Jun	I-6-D	2
1-Aug	H-6-A	5	20-Jul	B-6-D	1	19-Jun	H-4-D	1	10-May	F-10-A	1
1-Aug	I-5-B	3	25-Jul	H-5-B	1	19-Jun	I-6-D	1	10-May	I-6-A	2

08238

1-Aug	H-6-A	1	20-Jul	F-10-B	2	25-Jul	H-5-A	1	26-Jun	H-6-A	12
10-Jul	E-10-A	2	20-Jul	H-6-B	2	19-Jun	I-6-D	2	26-Jun	I-6-D	2
10-Jul	H-6-A	1	20-Jul	J-6-B	2	26-Jun	H-4-D	2			

08262

13-Jun	F-11-C	1	13-Jun	H-6-A	24	19-Jun	H-4-D	9	26-Jun	H-4-D	5
13-Jun	F-9-A	13	13-Jun	J-5-D	20	19-Jun	H-6-A	8	26-Jun	H-6-A	2
13-Jun	H-4-D	14	19-Jun	C-5-B	3	19-Jun	I-6-D	10	26-Jun	I-6-D	3

08267

1-Aug	B-5-A	2	20-Jul	B-6-D	1	13-Jun	H-4-D	9	5-Sep	C-5-B	1
8-Aug	B-7-C	3	20-Jul	H-6-B	32	13-Jun	H-6-A	13	5-Sep	D-6-C	1
8-Aug	I-6-B	6	20-Jul	J-6-B	33	13-Jun	J-5-D	10	5-Sep	H-6-A	3
10-Jul	E-10-A	2	25-Jul	E-10-D	5	19-Jun	I-6-D	1	5-Sep	J-5-D	3
10-Jul	H-6-A	4	25-Jul	H-5-A	22	26-Jun	I-6-D	1	23-Sep	H-7-D	1
10-Jul	J-3-B	4	13-Jun	F-9-A	1	20-May	D-10-A	1	20-Jul	F-10-B	1

08296

20-Jul	F-10-B	1
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08314

26-Jun	H-4-D	2	26-Jun	I-6-D	1	10-May	B-7-B	2
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08316

1-Aug	E-10-D	1	20-Jul	B-6-D	3	18-Sep	C-6-C	1	18-Sep	I-6-D	1
10-Jul	E-10-A	1	20-Jul	F-10-B	1	18-Sep	F-11-C	1	23-Sep	C-6-C	1
10-Jul	J-3-B	1	20-Jul	J-6-B	1	18-Sep	H-7-D	1	23-Sep	F-11-C	1

08318

1-Aug	E-10-D	1	1-Aug	H-6-A	1
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08322

10-Jul	E-10-A	2	10-Jul	H-6-A	4	20-Jul	J-6-B	1
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08323

10-Jul	E-10-A	3	26-Jun	H-6-A	1	5-Sep	H-3-A	3	5-Sep	J-5-D	2
10-Jul	J-3-B	1	5-Sep	C-5-B	4	5-Sep	H-6-A	2	18-Sep	C-6-C	14
19-Jun	H-6-A	1	5-Sep	D-6-C	1						

08338

5-Jun	F-9-A	2	26-Jun	H-4-D	1	20-May	D-10-A	2	20-May	J-5-C	2
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08351

26-Jun	H-4-D	3
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08353

20-Jul	J-6-B	2
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08355

13-Jun	F-11-C	1	19-Jun	C-5-B	1	26-Jun	E-11-B	1
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08364

19-Jun	C-5-B	1
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08370

19-Jun	I-6-D	2	26-Jun	I-6-D	6
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08393

10-May	H-4-B	3	5-Sep	J-5-D	1
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08397

1-Aug	I-5-B	1	10-May	C-6-C	2	18-Sep	C-6-C	7
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08398

19-Jun	C-5-B	1	5-Sep	D-6-C	7	5-Sep	H-6-A	1	23-Sep	C-6-C	4
26-Jun	I-6-D	3	5-Sep	H-3-A	2	5-Sep	J-5-D	2	23-Sep	F-11-C	1
5-Sep	C-5-B	7									

08404

23-Sep	C-6-C	4	23-Sep	F-11-C	1
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08441

8-Aug	I-6-B	1	13-Jun	F-11-C	1	10-May	F-10-A	1	18-Sep	F-11-C	1
10-Jul	H-6-A	1									

08442

8-Aug	I-6-B	1	26-Jun	E-11-B	1	10-May	C-6-C	4	5-Sep	D-6-C	1
15-Aug	C-6-C	1	26-Jun	H-6-A	1	5-Sep	C-5-B	3	18-Sep	C-6-C	3

08443

10-Jul	H-6-A	1	20-May	D-10-A	2	5-Sep	D-6-C	8	5-Sep	J-5-D	2
20-Jul	J-6-B	1	5-Sep	C-5-B	2	5-Sep	H-3-A	1	18-Sep	C-6-C	5
10-May	C-6-C	2									

08445

13-Jun F-11-C 2 10-May B-7-B 1 10-May C-6-C 1

08465

1-Aug	B-5-A	1	25-Jul	H-5-A	1	5-Sep	H-6-A	3	18-Sep	H-7-D	10
10-Jul	H-6-A	1	5-Sep	C-5-B	27	5-Sep	J-5-D	3	23-Sep	C-6-C	4
20-Jul	B-6-D	1	5-Sep	D-6-C	23	18-Sep	C-6-C	251	23-Sep	F-11-C	2
20-Jul	F-10-B	2	5-Sep	H-3-A	5	18-Sep	F-11-C	7	23-Sep	H-7-D	1

08479

1-Aug	H-6-A	1	20-Jul	J-6-B	1	26-Jun	H-4-D	2	26-Jun	H-6-A	2
10-Jul	J-3-B	6	19-Jun	J-5-D	1						

08481

1-Aug	B-5-A	1	25-Jul	H-5-A	1	20-May	J-5-C	1	19-Jun	H-4-D	1
1-Aug	E-10-D	1	8-Aug	I-6-D	1	5-Sep	J-5-D	1	19-Jun	I-6-D	6
1-Aug	H-6-A	6	15-Aug	C-6-C	2	13-Jun	H-4-D	3	26-Jun	H-6-A	1
1-Aug	I-5-B	2	20-Jul	H-6-B	3	13-Jun	H-6-A	4	26-Jun	I-6-D	3
8-Aug	I-6-B	6	20-Jul	J-6-B	1	13-Jun	J-5-D	7			

08490

19-Jun J-5-D 1

08491

19-Jun H-4-D 1

08493

10-Jul C-6-C 1

08499

5-Sep D-6-C 2

08514

10-Jul E-10-A 1 26-Jun H-6-A 1

08534

25-Jul H-5-A 1

08536

13-Jun H-6-A 3 19-Jun H-4-D 1 26-Jun H-4-D 2 26-Jun H-6-A 2

08555

10-May I-6-A 1 18-Sep C-6-C 1

08587

1-Aug B-5-A 1 10-Jul I-6-C 3 25-Jul H-5-A 2 19-Jun H-6-A 1

08588

20-Jul H-6-B 1 25-Jul H-5-A 1

08689

1-Aug	H-6-A	1	10-Jul	J-3-B	1	13-Jun	F-11-C	1	26-Jun	I-6-D	1
8-Aug	H-4-A	1	20-Jul	J-6-B	1	13-Jun	H-6-A	1	1-May	C-6-C	1
8-Aug	I-6-B	2	25-Jul	A-7-A	1	13-Jun	J-5-D	2	10-May	F-10-A	1
10-Jul	E-10-A	1	25-Jul	H-5-B	1	26-Jun	H-6-A	1	20-May	J-5-C	1
10-Jul	H-6-A	1									

08692

10-May	B-7-B	1	10-May	F-10-A	1
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08695

25-Jul	H-5-A	1
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08716

10-May	C-6-C	2
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08727

13-Jun	F-11-C	2
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08738

10-May	B-7-B	1	10-May	I-6-A	2
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08739

8-Aug	I-6-D	1	10-Jul	J-3-B	12	25-Jul	E-10-D	1	26-Jun	I-6-D	4
15-Aug	F-9-A	3	20-Jul	B-6-D	19	25-Jul	H-5-B	1	10-May	H-4-B	1
15-Aug	H-4-D	1	20-Jul	H-6-B	5	26-Jun	E-11-B	2	5-Sep	H-3-A	10
10-Jul	E-10-A	8	20-Jul	J-6-B	12	26-Jun	H-6-A	6	5-Sep	H-6-A	11
10-Jul	H-6-A	8									

08770

7-Aug	C-6-C	1
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08771

4-Sep	I-6-B	1
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08780

18-Sep	H-6-A	1
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08784

5-Sep	H-6-A	3	18-Sep	H-6-A	1	23-Sep	C-6-C	1	8-Aug	H-6-A	1
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08788

8-Aug	H-6-A	1	5-Sep	H-3-A	1	5-Sep	I-6-C	1	18-Sep	H-6-A	1
5-Sep	D-6-C	1	5-Sep	H-6-A	1						

08788.1

8-Aug	H-6-A	1
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08792

15-Aug	I-6-C	1	5-Sep	H-6-A	1	18-Sep	H-4-D	1	18-Sep	H-7-D	1
5-Sep	H-3-A	1	5-Sep	I-6-C	4	18-Sep	H-6-A	1	18-Sep	I-6-C	1
5-Sep	H-4-D	3									

08795

8-Aug H-4-A 2 8-Aug H-4-B 1 10-Jul H-6-A 1

08796

5-Sep E-11-D 2

08798

5-Sep H-4-A 2

08801

15-Aug	C-6-C	1	10-Jul	H-6-B	2	11-Jul	H-6-A	2	25-Jul	H-4-A	2
15-Aug	E-11-D	1	10-Jul	I-6-C	3	11-Jul	H-6-B	2	25-Jul	H-6-A	1
15-Aug	H-6-A	1	10-Jul	I-6-D	4	11-Jul	I-6-C	1	25-Jul	I-6-C	3
15-Aug	I-6-C	1	11-Jul	B-7-B	4	19-Jul	I-6-B	1	4-Sep	I-6-B	1
10-Jul	C-6-C	2	11-Jul	C-6-B	3	25-Jul	C-6-C	3	5-Sep	H-4-D	1
10-Jul	H-6-A	5	11-Jul	F-10-B	1						

08802

8-Aug B-7-C 1

08803

5-Sep H-4-A 2

08805

10-Jul	B-7-B	1	11-Jul	C-6-C	3	12-Jul	B-7-B	1	12-Jul	F-10-B	1
			11-Jul	C-6-B	1						

08806

11-Jul H-6-A 1 4-Sep I-6-B

08817

25-Jul C-6-C 1 11-Jul C-6-B 1

08832

1-Aug	I-6-D	1	25-Jul	H-6-A	3	5-Sep	E-11-D	1	18-Sep	F-11-C	1
15-Aug	I-6-C	3	25-Jul	I-6-C	1	5-Sep	H-4-A	3	18-Sep	H-4-A	1
25-Jul	C-6-C	4	5-Sep	C-6-C	3	5-Sep	H-6-A	2	18-Sep	I-6-C	1
25-Jul	H-4-A	3									

08834

8-Aug	E-11-A	1	5-Sep	C-5-B	2	5-Sep	H-4-A	4	18-Sep	C-6-C	2
8-Aug	E-11-D	1	5-Sep	C-6-C	8	5-Sep	H-6-A	3	23-Sep	E-11-D	1
15-Aug	E-11-D	1	5-Sep	E-11-D	1	5-Sep	I-6-C	3			

08840

10-Jul C-6-C 1

08857

1-Aug	B-5-A	1	8-Aug	B-7-C	3	10-Jul	I-6-C	1	25-Jul	H-6-A	1
1-Aug	I-6-D	1	8-Aug	I-6-C	1						

08858

8-Aug B-7-C 1 20-Jul J-6-B 1

08864

8-Aug H-6-A 1 10-Jul H-6-A 1 25-Jul H-5-B 2

08878

1-Aug I-6-D 1 8-Aug I-6-D 2 25-Jul H-5-B 1 5-Sep D-6-C 1
8-Aug H-4-B 2 19-Jul I-6-B 1

08881

13-Jun F-11-C 1 26-Jun E-11-B 1

08897

19-Jun H-4-D 1 26-Jun E-11-B 1

08898

13-Jun F-11-C 1 13-Jun H-6-A 1 5-Sep H-3-A 2 5-Sep H-6-A 1
13-Jun H-4-D 1 19-Jun H-6-A 1

08905

10-Jul E-10-A 1 20-Jul F-10-B 1 5-Sep D-6-C 1 18-Sep C-6-C 1

08907

10-Jul H-6-A 1 19-Jun I-6-D 1 20-May J-5-C 1 5-Sep D-6-C 1

08908

15-Aug C-6-C 1 5-Sep D-6-C 1 5-Sep J-5-D 3 18-Sep C-6-C 1
5-Sep C-5-B 1 5-Sep H-6-A 2

08924

19-Jun C-5-B 1 19-Jun H-6-A 2 26-Jun H-6-A 1 20-May B-7-A 1
19-Jun H-4-D 2 19-Jun I-6-D 4 10-May B-7-B 2

08955

10-Jul E-10-A 1

08957

15-Aug C-6-C 1

08970

13-Jun F-11-C 1 13-Jun F-9-A 1 19-Jun H-4-D 1

08971

1-Aug H-6-A 1

08972

10-Jul E-10-A 1 10-Jul H-6-A 21 20-Jul H-6-A 19

08973

15-Aug F-9-A 1 10-May H-4-B 1

08983

1-Aug I-5-B

09044

10-Jul	H-6-A	1	5-Sep	C-5-B	1	18-Sep	C-6-C	1	23-Sep	C-6-C	1
26-Jun	H-6-A	1	5-Sep	D-6-C	1	13-Jun	H-6-A	1			

09047

1-Aug	H-6-A	10	13-Jun	F-9-A	2	26-Jun	E-11-B	6	10-May	C-6-C	2
10-Jul	E-10-A	7	19-Jun	C-5-B	1	26-Jun	H-6-A	4	20-May	J-5-C	1
13-Jun	F-11-C	2									

09053

1-Aug	E-10-D	1	20-Jul	J-6-B	2	26-Jun	E-11-B	3	5-Sep	H-6-A	1
1-Aug	H-6-A	1	13-Jun	F-11-C	1	10-May	F-10-A	1	18-Sep	F-11-C	1
10-Jul	J-3-B	1									

09055.1

13-Jun	F-11-C	3	26-Jun	E-11-B	3	26-Jun	H-6-A	5	1-Aug	H-6-A	1
19-Jun	H-4-D	2									

09055.3

1-Aug	H-6-A	1									
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09062

19-Jun	H-4-D	2	19-Jun	H-6-A	3						
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09065

10-Jul	H-6-A	1	13-Jun	H-6-A	1	19-Jun	H-6-A	2	26-Jun	H-6-A	3
13-Jun	H-4-D	1	19-Jun	C-5-B	1	26-Jun	H-4-D	2			

09066

10-Jul	H-6-A	1									
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09090

13-Jun	H-6-A	1									
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09127

8-Aug	H-4-B	1									
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09185

20-May	D-10-A	1									
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09193

30-Apr	B-7-B	1	25-Jul	E-10-D	10	19-Jun	H-4-D	2	10-May	C-6-C	1
8-Aug	I-6-B	1	13-Jun	F-11-C	5	19-Jun	I-6-D	1	10-May	F-10-A	2
10-Jul	E-10-A	1	13-Jun	H-4-D	1	26-Jun	E-11-B	4	20-May	D-10-A	1
20-Jul	F-10-B	3									

09199

10-Jul	H-6-A	1									
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09200

10-Jul	C-6-C	1	10-Jul	I-6-C	1	11-Jul	F-10-B	1	13-Jun	H-6-A	1
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09203

1-Aug B-5-A 1

09205

13-Jun F-9-A 1

09221

8-Aug I-6-B 1	5-Sep D-6-C 1	5-Sep J-5-D 1	18-Sep I-6-D 2
5-Sep C-5-B 2	5-Sep H-6-A 1		

09227

1-Aug H-6-A 1

09229

8-Aug I-6-B 1	20-Jul H-6-A 3	13-Jun H-6-A 1	5-Sep J-5-D 1

09236

26-Jun E-11-B 1

09237

20-Jul F-10-B 2	10-May B-7-B 1	10-May I-6-A 1	

09238

8-Aug I-6-B	15-Aug H-4-D 1	20-Jul H-6-A 1	20-Jul J-6-B 1

09242

15-Aug H-4-D 1

09243

8-Aug H-4-B 1	10-Jul E-10-A 2	19-Jun C-5-B 1	

09245

15-Aug H-4-D 1	13-Jun J-5-D 1	19-Jun H-6-A 10	26-Jun E-11-B 2
13-Jun H-4-D 1	19-Jun C-5-B 4		

09251

10-Jul H-6-A 1

09261

1-Aug H-6-A 1	15-Aug H-4-D 2	10-Jul H-6-A 1	25-Jul H-5-A 3
1-Aug I-5-B 1	15-Aug H-6-A 1	20-Jul H-6-A 4	1-May C-6-C 1
15-Aug F-9-A 3			30-Apr B-7-B 3

09264

30-Apr B-7-B 1	13-Jun H-4-D 3	26-Jun H-4-D 1	1-May C-6-C 1
25-Jul H-5-A 1			

09280

30-Apr B-7-B 1 5-Sep H-3-A 1 5-Sep H-6-A 1

09285

1-Aug B-5-A 1 10-Jul C-6-C 2 20-Jul J-6-B 1 19-Jun C-5-B 3

09286

20-Jul F-10-B 1

0929910-Jul H-6-A 2 25-Jul H-5-A 1 13-Jun H-6-A 3 26-Jun H-6-A 2
20-Jul H-6-B 1 13-Jun F-11-C 1 19-Jun H-6-A 1 26-Jun I-6-D 1**09301**1-Aug E-10-D 1 10-Jul J-3-B 1 13-Jun F-11-C 1 19-Jun H-6-A 1
10-Jul I-6-C 2 25-Jul E-10-D 5 19-Jun F-11-C 1 26-Jun E-11-B 3**09328**

19-Jun I-6-D 2

09329

13-Jun F-11-C 1 26-Jun H-6-A 1

09364

19-Jun F-9-A 1

09367

1-Aug H-6-A 1 15-Aug F-9-A 1 18-Sep I-6-D 1

09373

15-Aug H-6-A 1 5-Sep C-5-B 1 5-Sep H-3-A 1 18-Sep F-11-C 1

09385.2

20-Jul J-6-B 1

09393

25-Jul H-5-A 1 1-Aug I-5-B 2 15-Aug H-6-A 1

09410

13-Jun F-9-A 2 26-Jun E-11-B 2

09427

5-Sep H-3-A 1 5-Sep H-6-A 1 18-Sep F-11-C 1

09435

5-Sep H-3-A 1

0945410-Jul H-6-A 1 26-Jun E-11-B 1 26-Jun H-6-A 1 26-Jun I-6-D 1
19-Jun H-6-A 2

09457

1-Aug I-5-B 1 10-Jul J-3-B 2 20-Jul B-6-D 3 20-Jul F-10-B 3

09471

20-Jul	B-6-D	3	25-Jul	H-5-A	1	5-Sep	D-6-C	4	5-Sep	H-6-A	3
20-Jul	H-6-A	1	25-Jul	H-5-B	2	5-Sep	H-3-A	8	5-Sep	J-5-D	7
25-Jul	B-6-D	1	5-Sep	C-5-B	1	18-Sep	H-7-D	6	18 -Sep	H-5-A	2
18- Sep	C-6-C	2	23-Sep	I-6-D	2	23-Sep	H-7-D	1	25 -Jul	H-5-A	1
25-Jul	H-5-B	2	15- Aug	F-9-A	1	1-Aug	B-5-A	1	20-Jul	B-6-D	3
20-Jul	H-6-A	1	1-Aug	I-5-B	1						

09483

5-Sep	C-5-B	4	5-Sep	H-3-A	7	23-Sep	C-6-C	4	23-Sep	F-11-C	1
5-Sep	D-6-C	3	18-Sep	C-6-C	8						

09484

8-Aug	B-7-C	1	8-Aug	I-6-D		23-Sep	H-7-D	1	18-Sep	I-6-D	1
8-Aug	H-4-B	1	2								

09485

5-Sep	C-5-B	5	5-Sep	D-6-C	3	5-Sep	H-6-A	10	18-Sep	I-6-D	10
18-Sep	H-7-D	7	23-Sep	I-6-D	1	23-Sep	H-7-D	2	23-Sep	C-6-C	1

09486

5-Sep H-3-A 17 5-Sep J-5-D 9

09496

23-Sep I-6-D 1

09503

18-Sep C-6-C 1

09520

20-Jul J-6-B 1

09525

13-Jun F-9-A 1 13-Jun J-5-D 1 20-May D-10-A 1

09545

1-Aug	B-5-A	3	20-Jul	F-10-B	1	25-Jul	H-5-A	1	5-Sep	D-6-C	1
1-Aug	E-10-D	2	20-Jul	H-6-B	1	10-May	C-6-C	1			

09578

8-Aug I-6-B 1 15-Aug C-6-C 3 15-Aug H-6-A 1 20-May H-6-B 3

09582

15-Aug C-6-C 1 15-Aug H-4-D 2

09631

26-Jun I-6-D 2

09637

13-Jun I-6-A 1

09638

1-Aug	B-5-A	5	5-Sep	H-3-A	2	18-Sep	H-7-D	1	23-Sep	C-6-C	2
15-Aug	F-9-A	1	5-Sep	J-5-D	3	18-Sep	I-6-D	4	23-Sep	F-11-C	2
25-Jul	H-5-B	1	18-Sep	F-11-C	2						

09661

15-Aug	C-6-C	1	20-Jul	B-6-D	2	13-Jun	J-5-D	2	5-Sep	C-5-B	1
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09664

10-Jul	E-10-A	2	26-Jun	E-11-B	2	26-Jun	H-6-A	4	26-Jun	I-6-D	1
19-Jun	H-4-D	1									

09666

15-Aug	C-6-C	1									
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09669

19-Jun	H-4-D	1	1-May	I-6-B	1	5-Sep	C-5-B	2	23-Sep	C-6-C	1
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09684

18-Sep	C-6-C	2	23-Sep	C-6-C	1						
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09688

1-Aug	B-5-A	1	20-Jul	H-6-B	1	19-Jun	C-5-B	1	26-Jun	H-4-D	2
1-Aug	E-10-D	2	20-Jul	J-6-B	3	19-Jun	H-4-D	4	26-Jun	H-6-A	5
1-Aug	I-5-B	1	25-Jul	H-5-A	1	19-Jun	H-6-A	2	26-Jun	I-6-D	7
8-Aug	I-6-B	2	13-Jun	F-9-A	1	19-Jun	I-6-D	7	1-May	I-6-B	1
10-Jul	H-6-A	1	13-Jun	J-5-D	2	26-Jun	E-11-B	5	20-May	J-5-C	2
10-Jul	J-3-B	1									

09689

8-Aug	B-7-C	1	25-Jul	E-10-D	1	19-Jun	C-5-B	1	19-Jun	H-4-D	1
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09690

1-Aug	I-5-B	3	20-Jul	J-6-B	4	25-Jul	H-5-A	2	13-Jun	J-5-D	4
10-Jul	J-3-B	2	25-Jul	E-10-D	1	25-Jul	H-5-B	4	10-May	H-4-B	2
20-Jul	H-6-B	3									

09696

5-Sep	C-5-B	7	5-Sep	D-6-C	3	23-Sep	F-11-C	1			
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09720

1-Aug	B-5-A	1	13-Jun	H-6-A	1	5-Sep	D-6-C	1			
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09725

10-Jul	H-6-A	2	25-Jul	H-5-B	3	26-Jun	E-11-B	1			
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09754

8-Aug H-4-B 1

09781

8-Aug B-7-C 3 8-Aug H-6-A 1 8-Aug I-6-B 1

09815

10-Jul H-6-A 1

09818

10-Jul E-10-A 5	10-Jul J-3-B 9	26-Jun E-11-B 1	26-Jun H-6-A 1
10-Jul H-6-A 3	20-Jul J-6-B 1	26-Jun H-4-D 1	

09878

30-Apr B-7-B 1

09886

10-May C-6-C 1

09887

1-May F-10-B 2

09952

23-Sep C-6-C 1 23-Sep I-6-D 3

09963

5-Sep C-5-B 1

10021

23-Sep I-6-D 3

10099

18-Sep H-7-D 1 18-Sep I-6-D 4

10200

20-Jul H-6-B 1

10202

26-Jun I-6-D 1

10288

10-Jul J-3-B 1	19-Jun F-11-C 1	26-Jun E-11-B 38	26-Jun I-6-D 2
20-Jul F-10-B 1	19-Jun H-6-A 2	26-Jun H-6-A 2	

10292

8-Aug I-6-D 1 10-Jul H-6-A 2

10293

13-Jun F-9-A 1

10299

1-Aug	E-10-D	1	8-Aug	I-6-D	1	10-May	B-7-B	1	20-May	B-7-A	1
8-Aug	I-6-B	1	13-Jun	F-11-C	1						

10301

10-Jul	E-10-A	1	13-Jun	J-5-D	2	19-Jun	I-6-D	5	26-Jun	H-6-A	5
10-Jul	H-6-A	1	19-Jun	C-5-B	1	26-Jun	E-11-B	1	26-Jun	I-6-D	1
13-Jun	H-6-A	4	19-Jun	H-4-D	1						

10304

1-Aug	H-6-A	1	15-Aug	F-9-A	1	15-Aug	H-6-A	17	26-Jun	H-6-A	1
15-Aug	C-6-C	1									

10368

5-Sep	C-5-B	4	5-Sep	H-3-A	2	5-Sep	J-5-D	2	23-Sep	I-6-D	1
5-Sep	D-6-C	10	5-Sep	H-6-A	7	23-Sep	C-6-C	4			

10397

5-Jun	B-6-B	1	19-Jun	H-4-D	2	5-Sep	D-6-C	2	18-Sep	C-6-C	2
13-Jun	H-4-D	7	19-Jun	I-6-D	1	5-Sep	H-6-A	1	18-Sep	H-7-D	1
13-Jun	H-6-A	3	26-Jun	E-11-B	2	5-Sep	J-5-D	1	23-Sep	C-6-C	3
19-Jun	C-5-B	5	5-Sep	C-5-B	3						

10405

13-Jun	F-11-C	5	13-Jun	H-6-A	2	26-Jun	E-11-B	3	26-Jun	H-6-A	1
13-Jun	F-9-A	3	19-Jun	H-4-D	1						

10414

18-Sep	C-6-C	1									
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10431

8-Aug	I-6-D	1									
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10438

30-Apr	B-7-B	4	5-Jun	H-6-A	5	19-Jun	I-6-D	15	20-May	B-6-D	6
1-Aug	B-5-A	1	13-Jun	F-11-C	13	26-Jun	E-11-B	3	20-May	B-7-A	7
10-Jul	E-10-A	2	13-Jun	F-9-A	16	26-Jun	H-4-D	3	20-May	D-10-A	6
10-Jul	H-6-A	4	13-Jun	H-4-D	7	26-Jun	H-6-A	1	20-May	G-7-B	1
10-Jul	J-3-B	3	13-Jun	H-6-A	8	1-May	F-10-B	3	20-May	J-5-C	7
20-Jul	B-6-D	2	13-Jun	J-5-D	17	1-May	H-7-A	1	5-Sep	C-5-B	5
20-Jul	J-6-B	3	19-Jun	C-5-B	9	10-May	B-7-B	9	5-Sep	D-6-C	1
25-Jul	H-5-A	1	19-Jun	H-4-D	30	10-May	C-6-C	8	18-Sep	C-6-C	3
5-Jun	B-6-B	4	19-Jun	H-6-A	15	10-May	I-6-A	2	23-Sep	C-6-C	1
5-Jun	F-9-A	4									

10444

15-Aug	C-6-C	1	10-May	H-4-B	2	5-Sep	D-6-C	5	23-Sep	C-6-C	1
10-May	F-10-A	1	5-Sep	C-5-B	3	5-Sep	H-6-A	1	23-Sep	I-6-D	3

10446.1

1-Aug	H-6-A	1	13-Jun	H-4-D	1	19-Jun	I-6-D	2	5-Sep	C-5-B	2
10-Jul	H-6-A	2	13-Jun	H-6-A	2	26-Jun	E-11-B	1	18-Sep	C-6-C	3
25-Jul	H-5-B	1	13-Jun	J-5-D	4	26-Jun	H-6-A	1	18-Sep	I-6-D	2
13-Jun	F-11-C	1	19-Jun	C-5-B	8	26-Jun	I-6-D	2	23-Sep	H-7-D	1
13-Jun	F-9-A	2									

10447

1-Aug	H-6-A	1	20-Jul	B-6-D	6	20-Jul	H-6-B	1	20-Jul	J-6-B	3
10-Jul	H-6-A	1									

10461

1-Aug	B-5-A	1	1-Aug	I-5-B	1	20-May	B-7-A	1	5-Sep	D-6-C	3
1-Aug	E-10-D	1	15-Aug	H-4-D	2						

10462

26-Jun	E-11-B	5	26-Jun	H-4-D	1	10-May	C-6-C	3			
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10495

15-Aug	F-9-A	3									
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10501

1-May	C-6-C	2									
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10518

30-Apr	B-7-B	2									
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10521

1-May	F-10-B	1	10-May	B-7-B	2	10-May	H-4-B	2	20-May	D-10-A	1
1-May	H-7-A	1									

10521.1

13-Jun	F-11-C	1	19-Jun	C-5-B							
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10524

5-Sep	C-5-B	1	5-Sep	J-5-D	2	23-Sep	F-11-C	4	23-Sep	F-11-C	4
5-Sep	H-3-A	2	18-Sep	C-6-C	25	18-Sep	I-6-D	12	23-Sep	H-7-D	10
5-Sep	H-6-A	1	18-Sep	F-11-C	16	23-Sep	C-6-C	6	23-Sep	I-6-D	26

10567

23-Sep	I-6-D	1									
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10578

15-Aug	C-6-C	4	10-Jul	J-3-B	1	20-May	B-6-D	1	20-May	J-5-C	8
15-Aug	H-4-D	8	26-Jun	E-11-B	5	20-May	D-10-A	5	5-Sep	D-6-C	2
10-Jul	E-10-A	13	10-May	C-6-C	1						

10585

1-Aug	E-10-D	1	8-Aug	I-6-D	1	20-Jul	H-6-B	1	5-Sep	D-6-C	2
1-Aug	H-6-A	1	15-Aug	C-6-C	1	25-Jul	E-10-D	1	5-Sep	J-5-D	1
1-Aug	I-5-B	2	15-Aug	F-9-A	1	25-Jul	H-5-A	4	18-Sep	C-6-C	1
8-Aug	H-4-B	1	10-Jul	E-10-A	1	5-Sep	C-5-B	1			

10587

5-Jun	H-6-A	1	13-Jun	H-4-D	6	19-Jun	C-5-B	3	10-May	C-6-C	1
13-Jun	F-11-C	2	13-Jun	H-6-A	4	26-Jun	E-11-B	5	20-May	G-7-B	1

10589.1

15-Aug	H-4-D	1
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10627

1-Aug	B-5-A	1	5-Sep	C-5-B	1	5-Sep	H-6-A	3	18-Sep	H-7-D	2
8-Aug	B-7-C	1	5-Sep	D-6-C	6	18-Sep	C-6-C	5	18-Sep	I-6-D	1
25-Jul	H-5-B	1	5-Sep	H-3-A	1	18-Sep	F-11-C	4			

10648

18-Sep	H-7-D	1	23-Sep	C-6-C	1	23-Sep	H-7-D	2	23-Sep	I-6-D	8
18-Sep	I-6-D	2									

10651

26-Jun	E-11-B	1	23-Sep	C-6-C	1	23-Sep	H-7-D	4	23-Sep	I-6-D	10
18-Sep	I-6-D	1									

10658

25-Jul	H-5-A	1
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10663

1-Aug	B-5-A	2	25-Jul	E-10-D	2	26-Jun	I-6-D	2	5-Sep	H-6-A	3
1-Aug	E-10-D	1	25-Jul	H-5-A	11	1-May	C-6-C	2	5-Sep	J-5-D	4
1-Aug	I-5-B	1	5-Jun	F-9-A	1	1-May	F-10-B	3	18-Sep	C-6-C	9
10-Jul	E-10-A	2	19-Jun	C-5-B	1	10-May	B-7-B	4	18-Sep	F-11-C	5
10-Jul	H-6-A	4	19-Jun	H-4-D	4	10-May	C-6-C	2	18-Sep	H-7-D	2
10-Jul	J-3-B	1	19-Jun	H-6-A	6	10-May	F-10-A	1	18-Sep	I-6-D	1
20-Jul	F-10-B	1	19-Jun	I-6-D	2	10-May	H-4-B	2	23-Sep	C-6-C	6
20-Jul	H-6-B	2	26-Jun	H-4-D	2	5-Sep	C-5-B	67	23-Sep	F-11-C	2
20-Jul	J-6-B	5	26-Jun	H-6-A	3	5-Sep	D-6-C	38	23-Sep	H-7-D	7

10670

5-Sep	C-5-B	4	5-Sep	H-6-A	1	18-Sep	H-7-D	15	23-Sep	F-11-C	2
5-Sep	D-6-C	1	5-Sep	J-5-D	3	18-Sep	I-6-D	25	23-Sep	H-7-D	7
5-Sep	H-3-A	7	18-Sep	C-6-C	11	23-Sep	C-6-C	4	23-Sep	I-6-D	5

10674

1-Aug	I-5-B		15-Aug	C-6-C	2	20-Jul	B-6-D	1	5-Sep	H-6-A	1
2			15-Aug	H-6-A	1	5-Sep	C-5-B	1	5-Sep	J-5-D	1

10676

1-Aug	H-6-A	1	5-Sep	D-6-C	7	18-Sep	F-11-C	2	23-Sep	H-7-D	2
15-Aug	F-9-A	1	5-Sep	H-6-A	6	18-Sep	H-7-D	5	23-Sep	I-6-D	2
5-Sep	C-5-B	2	5-Sep	J-5-D	6	18-Sep	I-6-D	3			

10698.2

5-Sep	H-6-A	16	18-Sep	I-6-D	10	18-Sep	H-7-D	2
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10705

5-Sep	C-5-B	4	5-Sep	H-6-A	1	18-Sep	C-6-C	2	23-Sep	F-11-C	1
5-Sep	D-6-C	2	5-Sep	J-5-D	1	23-Sep	C-6-C	1			

10805

26-Jun	E-11-B	1
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10838

20-May	J-5-C	1
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10851

1-Aug	I-5-B
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10870

8-Aug	I-6-B
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10891

8-Aug	B-7-C	1	20-Jul	J-6-B	1	25-Jul	H-5-A	1	5-Sep	C-5-B	2
8-Aug	I-6-B	1									

10903

26-Jun	H-4-D	1
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10915

1-Aug	H-5-A	1	19-Jun	H-4-D	1	26-Jun	I-6-D	1	18-Sep	H-7-D	1
10-Jul	E-10-A	2	26-Jun	E-11-B	3	5-Sep	C-5-B	2	23-Sep	H-7-D	1
10-Jul	H-6-A	3	26-Jun	H-6-A	1	18-Sep	C-6-C	1	23-Sep	I-6-D	1

10925.1

1-Aug	B-5-A	1	10-Jul	E-10-A	1	13-Jun	F-9-A	7	19-Jun	I-6-D	20
1-Aug	E-10-D	1	20-Jul	B-6-D	2	13-Jun	H-4-D	6	26-Jun	E-11-B	7
8-Aug	B-7-C	1	20-Jul	F-10-B	2	13-Jun	H-6-A	5	26-Jun	H-6-A	2
8-Aug	I-6-B	1	25-Jul	E-10-D	6	13-Jun	J-5-D	7	26-Jun	I-6-D	1
15-Aug	C-6-C	2	25-Jul	H-5-A	4	19-Jun	C-5-B	6	5-Sep	C-5-B	2
15-Aug	F-9-A	2	5-Jun	F-9-A	1	19-Jun	H-4-D	30	5-Sep	H-6-A	2
10-Jul	C-6-C	4	13-Jun	F-11-C	7	19-Jun	H-6-A	22			

10942.1

15-Aug	H-4-D	2	19-Jun	C-5-B	4	10-May	F-10-A	1	5-Sep	H-6-A	4
5-Jun	H-6-A	2	19-Jun	H-4-D	5	20-May	B-7-A	1	5-Sep	J-5-D	1
13-Jun	F-11-C	14	19-Jun	H-6-A	10	20-May	J-5-C	1	18-Sep	C-6-C	15
13-Jun	F-9-A	8	26-Jun	H-4-D	1	5-Sep	C-5-B	22	18-Sep	I-6-D	1
13-Jun	H-4-D	6	26-Jun	H-6-A	3	5-Sep	D-6-C	17	23-Sep	C-6-C	2
13-Jun	H-6-A	12	26-Jun	I-6-D	3	5-Sep	H-3-A	5	23-Sep	F-11-C	1
13-Jun	J-5-D	13	10-May	B-7-B	1						

10943

15-Aug	H-4-D	2	5-Sep	C-5-B	1	5-Sep	D-6-C	6	5-Sep	H-3-A	9
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10944

15-Aug	H-4-D	1	5-Sep	H-3-A	27	18-Sep	C-6-C	19	23-Sep	C-6-C	7
5-Sep	C-5-B	3	5-Sep	H-6-A	14	18-Sep	F-11-C	9	23-Sep	F-11-C	3
5-Sep	D-6-C	106	5-Sep	J-5-D	12	18-Sep	H-7-D	5	23-Sep	H-7-D	5

10950

8-Aug	I-6-D	1	5-Sep	C-5-B	28	5-Sep	H-6-A	11	18-Sep	H-7-D	3
15-Aug	C-6-C	2	5-Sep	D-6-C	54	5-Sep	J-5-D	5	18-Sep	I-6-D	1
15-Aug	F-9-A	1	5-Sep	H-3-A	5						

10955

18-Sep	H-7-D	2	23-Sep	F-11-C	1	23-Sep	H-7-D	5	23-Sep	I-6-D	9
23-Sep	C-6-C	2									

10998

18-Sep	C-6-C	9	18-Sep	H-7-D	7	23-Sep	C-6-C	5	23-Sep	H-7-D	18
18-Sep	F-11-C	19	18-Sep	I-6-D	4	23-Sep	F-11-C	8	23-Sep	I-6-D	12

11000

1-Aug	E-10-D	1	1-Aug	I-5-B	1						
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11006

1-Aug	B-5-A	2	10-Jul	E-10-A	2	25-Jul	H-5-A	11	19-Jun	I-6-D	6
1-Aug	E-10-D	1	10-Jul	H-6-A	9	13-Jun	J-5-D	1	26-Jun	E-11-B	6
1-Aug	I-5-B	1	10-Jul	J-3-B	4	19-Jun	C-5-B	1	26-Jun	H-4-D	7
8-Aug	B-7-C	1	20-Jul	H-6-B	1	19-Jun	H-4-D	11	26-Jun	H-6-A	10
8-Aug	I-6-D	2	20-Jul	J-6-B	5	19-Jun	H-6-A	3	18-Sep	I-6-D	5
15-Aug	H-4-D	1	25-Jul	E-10-D	3				23-Sep	I-6-D	5

11029

1-Aug	B-5-A	2	15-Aug	C-6-C	1	5-Sep	D-6-C	4	18-Sep	F-11-C	4
1-Aug	I-5-B	1	20-Jul	H-6-B	2	5-Sep	H-3-A	1	18-Sep	H-7-D	1
8-Aug	H-4-B	3	20-Jul	J-6-B	7	5-Sep	H-6-A	8	18-Sep	I-6-D	3
8-Aug	I-6-B	5	25-Jul	H-5-A	20	5-Sep	J-5-D	2	23-Sep	C-6-C	3
8-Aug	I-6-D	2	5-Sep	C-5-B	3	18-Sep	C-6-C	13	23-Sep	I-6-D	3

11068

5-Sep D-6-C 1 18-Sep I-6-D 3 23-Sep H-7-D 1

111288-Aug H-4-B 2 25-Jul A-7-A 1 5-Sep H-3-A 1 5-Sep H-6-A
8-Aug I-6-B 2**11135**

8-Aug H-4-B 1

11149

8-Aug I-6-B

Appendix C: Checklist of the Lepidoptera of the NASA Plum Brook Station Erie County, Ohio Compiled from 1994 and 2001 Surveys

FAMILY TINEIDAE - Clothes Moths and Acrolophids

A large family of small to medium small moths. Most species are dark, but some are pale without markings. Larvae feed on a variety of food including dead plant and animal matter, fungi, and wool. Most larvae form cases similar to the casebearers.

00373 *Acrolophus popeanetia*

FAMILY OECOPHORIDAE - Oecophorid Moths

Small to medium sized moths. The larvae usually feed concealed in webs or in rolled or tied leaves on food plants such as dead leaves or animal carcasses.

00882 *Agonopterix robiniella*
00951 *Machimia tentoriferella*
00955 *Psilocorsis guercicella*
00992 *Ethmia zelleriella*
01011 *Antaeotricha schlageri*
01014 *Antaeotricha leucillana*
01032 *Gonioptera mistrella*
01046 *Callima argenticinctella*

FAMILY MOMPHTIDAE - Momphid Moths

Moths with very small wingspan. The caterpillars fed in buds and seed capsules of evening primroses and related plants.

01443 *Mompha eloisella*

FAMILY COSMOPTERIGIDAE - Cosmopterigid Moths

Small to minute moths with long labial palpi which curve upward and often look sickle-shaped. Larva of some species feed on seeds, flowers, buds or dead plant material and others are leaf miners. Some species form stem or root galls.

01467 *Euclemensia bassettella*

FAMILY GELECHIIDAE - Gelechid Moths

Large diverse family of small to very small moths. Species include leaf miners, stem gall makers, and seed and fruit feeders. A number of species are pests found in stored grain products.

01685 *Metzneria lappella*
01986 *Gnorimoschema gallaesolidaginis*
02093 *Chionodes mediofuscella*
02110 *Chionodes pseudofondella*
02230 *Anacampsis agrimonella*
02291 *Trichotaphe bilobella*
02295 *Trichotaphe flavocostella*

FAMILY PLUTELLIDAE - Diamondback Moths

Very small moths in which the white forewing markings form a "diamond" when the wings are folded together. Larvae feed in tied leaves or in groups in silk webbing.

02366 *Plutella xylostella*

FAMILY YPONOMEUTIDAE - Ermine Moths

The larvae of these small moths live together in webbing spun over leaves of food plant and pupate in loose webbing. Adult moths at rest roll their wings and resemble sticks.

- 02401 *Atteva punctella*
- 02416 *Yponomeuta atomocella*
- 02420 *Yponomeuta multipunctella*

FAMILY COSSIDAE - Carpenterworm and Leopard Moths

The largest microlepidoptera, wing span 2.5-8.5 cm. Larvae bore in various trees, sometimes causing considerable damage. The life cycle for some species is 2-4 years.

- 02693 *Prionoxystus robiniae*
- 02694 *Prionoxystus macmurtrei*

FAMILY TORTRICIDAE - Leaf-roller Moths

These are small moths classified by their wing venation. They have wide wings with short wing fringes. Larvae live in concealed, usually rolled leaves, or in shoots spun together, or in stems, fruits, buds, flower heads, seed pods, or roots. These caterpillars are often referred to as "bugworms" and are of economic importance in agriculture such as the codling moth, the red-banded leaf roller and the oriental fruit moth.

- 02738 *Endothenia hebesana*
- 02743 *Enbdothenia quadrimaculana*
- 02748 *Aterpia approximana*
- 02769 *Pseudosciaphila duplex*
- 02771 *Phaecasiophora confixana*
- 02772 *Phaecasiophora niveiguttana*
- 02787 *Olethreutes connectus*
- 02814 *Olethreutes versicolorana*
- 02822 *Olethreutes concinnana*
- 02823 *Olethreutes fasciatana*
- 02837 *Olethreutes astrologana*
- 02859 *Olethreutes cespitana*
- 02864 *Hedya cyanana*
- 02866 *Evora hemidesma*
- 02910 *Phaneta essexana*
- 02916 *Phaneta formosana*
- 02927 *Phaneta ochrocephala*
- 02928 *Phaneta raracana*
- 02929 *Phaneta ochroterminana*
- 02936 *Phaneta tomonana*
- 02937 *Phaneta parmatana*
- 02973 *Phaneta striatana*
- 02998 *Phaneta olivaceana*
- 03037 *Eucosma agricolana*
- 03042.1 *Eucosma pediasios*
- 03051 *Eucosma glomerana*
- 03091 *Eucosma matutina*
- 03116.1 *Eucosma similiana*
- 03120 *Eucosma derelicta*
- 03142 *Eucosma cataclystiana*
- 03151 *Pelochrista scintillana*
- 03168 *Pelochrista zomonana*
- 03172 *Epiblema strenuana*
- Epiblema undescribed species (near walsinghami)
- 03203 *Epiblema brightonana*
- Sona species (underscribed)
- 03219 *Sonia candana*
- 03226 *Gypsonoma haimbachiana*

03230 Proteoteras aesculana
03233 Proteoteras crescentana
03235 Epinotia nonana
03351 Epinotia lindana
03359 Ancylis metamelana
03367 Ancylis burgessiana
03374 Ancylis comptana
03375 Ancylis divisana
03419 Pammene felicitana
03428 Grapholita packardi
03429 Grapholita prunivora
03434 Grapholita fana
03471 Cydia caryana
03492 Melissopus latiferreanus
03495 Ecdytolopha punctidiscana
03497 Ecdytolopha insiticiana
03503 Croesia semiprurupurana
03594 Pandemis limitata
03597 Argyrotaenia velutinana
03623 Argyrotaenia quercifoliana
03635 Choristoneura rosaceana
03637 Choristoneura conflictana
03648 Archips argyrosipa
03653 Archips semiferana
03689 Ptycholoma virescana
03693 Xenotemna pallorana
03695 Sparganothis sulfureana
03706 Sparganothis xanthioides
03720 Sparganothis reticulatana
03732 Platynota flavedana
03747 Coelostathma discopunctana

FAMILY COCHYLIDAE - Chochylid Moths

Small moths that spend their larval stages as leaf tiers or miners or as borers in seeds, stems and other parts of plants.

03801 Trachysmia birdana
Aethes species (underscribed)
03846 Aethes rana

FAMILY HESPERIIDAE - Skippers

Skippers are usually small to medium, thick-bodied, orange, black to white in color butterflies. They have six fully developed walking legs and elongated antennal clubs often hooked at the tip.

03870 Epargyreus clarus
03909 Thorybes bathyllus
03947 Erynnis juvenalis
03952 Erynnis horatius
03959 Erynnis baptisiae
04004 Ancyloxypha numitor
04012 Thymelicus lineola
04023 Hesperia leonardus leonardus
04036 Polites coras
04041 Polites themistocles
04042 Polites origenes orgines
04047 Wallengrenia egeremet
04048 Pompeius verna
04051 Atrytone logan logan
04059 Poanes hobomok hobomk
04060 Poanes zabulon zabulon

04078 *Euphyes vestris metacomet*

FAMILY PAPILIONIDAE - Swallowtail Butterflies

The swallowtails are large and brightly colored and usually have a long tail projecting from the hind wing. The males of most swallowtails patrol long routes in search of females. Adult feeding is often restricted to flowers with long tubes since the mouthparts are long. The larval host include several families of plants with aromatic leaves such as citrus, umbel, laurel, and pipevine familes.

04159 *Papilio polyxenes asterias*

04176 *Papilio glaucus glaucus*

04181 *Papilio troilus troilus*

FAMILY PIERIDAE - White and Sulfur Butterflies

These butterflies are usually small to medium sized and are predominately white, yellow, or orange, often with some black or pinkish scaling. Adults feed on floral nectar and freshly emerged males of many species often take moisture at wet sand or mud. Larval hosts include crucifers, legumes, composites, heaths or willows.

04197 *Pieris rapae*

04209 *Colias philodice philodice*

04210 *Colias eurytheme*

04237 *Eurema lisa*

FAMILY LYCAENIDAE - Gossamer Winged Butterflies

Most species are small and the eyes are usually indented near the antennae. The front legs of the males are somewhat reduced, although the females' legs are fully developed. The larvae feed on a variety of plant flowers, fruits or leaves. One species the Harvester caterpillar feeds on aphids.

04249 *Feniseca tarquinius*

04251a *Lycaena phlaeas americana*

04256 *Lycaena hyllus*

04282a *Satyrium calanus falicer*

04336a *Strymon melinus humuli*

04361 *Everes comyntas comyntas*

04363 *Celastrina ladon*

04363.1 *Celastrina neglecta*

FAMILY LIBYTHEIDAE - Snouts

This is the smallest butterfly family. Adults have elongated labial palpi which gives them the appearance of having a "snout". The adults have a short proboscis and feeds on small flowers and even bird droppings. The only known larval host include members of the hackberry family (*Celtis*).

04410 *Libytheana bachmanii*

FAMILY NYMPHALIDAE - Brush-footed Butterflies

These butterflies have strongly reduced forelegs, which are used as smell sensors instead of for walking. The pendant pupae hang from a silk button. This is the largest and most diverse family of true butterflies.

04420 *Polygonia interrogationis*

04421 *Polygonia comma*

04432 *Nymphalis antiopa antiopa*

04434 *Vanessa virginensis*

04435 *Vanessa cardui*

04437a *Vanessa atalanta rubria*

04440 *Junonia coenia*

04447 *Euptoieta claudia*

04450 *Speyeria cybele cybele*

04465 *Boloriaiana bellona*

- 04481 *Phyciodes tharos tharos*
- 04522b *Limenitis artemis astyanax*
- 04523 *Limenitis archippus archippus*

FAMILY APATURIDAE - Leaf Winged Butterflies

The males perch with closed wings while awaiting females. The adults prefer to feed at rotting fruit, sap flows, or dung, but occasionally take nectar at flowers. Their flight is usually strong, irregular, and rapid. The larvae feed on a variety of woodland trees and shrubs.

- 04557 *Asterocampa celtis celtis*
- 04562.1 *Asterocampa clyton*

FAMILY SATYRIDAE - Satyr and Wood Nymph Butterflies

These are medium-sized brown butterflies with eyespots on the ventral wing surface of most species. They have a low, erratic, skipping flight pattern. Adults prefer to feed on sap flows, rotting fruit, or dung. Almost all feed on grasses or sedges as larvae.

- 04568.1 *Enodia anthedon*
- 04569a *Satyrodes appalachia leeuwi*
- 04578 *Megisto cymela cymela*
- 04587 *Cercyonis pegala*

FAMILY DANAIDAE - Milkweed Butterflies

The one species found locally is the Monarch Butterfly. All stages of this butterfly are distasteful and emetic due to the cardiac glycosides contained in the larval host leaves of the milkweed plants. The adult is a large orange butterfly with black scaling on the veins and a broad black margin on both wings above.

- 04614 *Danaus plexippus plexippus*

FAMILY ZYGAENIDAE - Smoky Moths

Day flying moths that have translucent smoky gray to black wings. Larvae feed by skeletonizing leaves of the grape family.

- 04624 *Harrisina americana*

FAMILY LIMACODIDAE - Slug Caterpillar Moths

Medium to medium-small moths with stout, hairy bodies and broad, rounded wings. Most are brown or yellowish with contrasting forewing markings. Larvae are naked to densely hairy which are often stinging hairs.

- 04652 *Tortricidia testacea*
- 04659 *Packardia geminata*
- 04665 *Lithacodes fasciola*
- 04667 *Apoda y-inversum*
- 04669 *Apoda biguttata*
- 04671 *Prolimacodes badia*
- 04681 *Isa textula*
- 04697 *Euclea delphinii*
- 04698 *Parasa chloris*
- 04700 *Sibine stimulea*

FAMILY PYRALIDAE - Pyralid Moths

Small to medium sized moths comprising the third largest moth family in North America. These moths hold their wings out to the side, fold them flat, or roll them up, making their bodies look like sticks. The larvae feed on dry or decaying vegetable matter and a number are stem borers in grasses. Some larvae live in beehives and some live an aquatic life. Many pyralids are important pests of crops and stored food products such as the European corn borer.

- 04748 *Munroessa icciusalis*
- 04755 *Synclita oblitalis*
- 04779 *Petrophila canadensis*
- 04794 *Eustixia pupula*
- 04870 *Glyphaeria sequistrialis*
- 04877 *Aethiophysa lentiflualis*
- 04895 *Chalcoela iphitalis*
- 04943 *Crocidophora pustuliferalis*
- 04949 *Ostrinia nubilalis*
- 04980 *Helvibotys helvialis*
- 05017 *Loxostege cereralis*
- 05040 *Pyrausta bicoloralis*
- 05079 *Udea rubigalis*
- 05156 *Nomophila neacrtica*
- 05159 *Desmia funeralis*
- 05160 *Desmia maculalis*
- 05226 *Palpita magniferalis*
- 05228 *Polygrammodes flavidalis*
- 05241 *Pantographa limata*
- 05250 *Lygropia rivulalis*
- 05378 *Crambus laqueatellus*
- 05381 *Crambus calignosellus*
- 05391 *Chrysoteuchia topiaria*
- 05413 *Pediasia trisecta*
- 05420 *Microcrambus elegans*
- 05464 *Urola nivalis*
- 05465 *Vaxi auratella*
- 05533 *Herculla olinalis*
- 05552 *Galasa nigrinodis*
- 05556 *Tosale ovipalagalis*
- 05566 *Arta statalis*
- 05574 *Heliades mulleolella*
- 05622 *Galleria mellonella*
- 05651 *Acrobasis indigenella*
- 05674 *Acrobasis demotella*
- 05773 *Salebriaria engeli*
- 05999 *Eulogia ochrifrontella*
- 06053 *Peoria approximella*

FAMILY PTEROPHORIDAE - Plume Moths

Medium to small moths easily recognized by long, slender legs and T-shaped appearance when at rest, with rolled wings held at right angles to the body. Larvae usually leafrollers or borers.

- 06092 *Geina tenuidactyla*
- 06107 *Gillmenia pallidactyla*

FAMILY THYATIRIDAE - Thyatirid Moths

Medium sized moths which resemble the noctuids and prominents. The larvae live and feed in loosely rolled leaves of food plants.

- 06235 *Habrosyne scripta*
- 06236 *Habrosyne gloriosa*

- 06237 *Pseudothyatira cymatophoroides*
06240 *Euthyatira pudens*

FAMILY DREPANIDAE - Hooktip Moths

These moths are so named because of the prominent hook on the tip of the fore wing. Larvae lack anal prolegs and feed externally on their food plant and pupate in cocoons amid fallen leaves.

- 06255 *Oreta rosea*

FAMILY GEOMETRIDAE - Inchworm Moths

Small to medium sized moths with slender bodies and broad wings. Larvae usually twiglike, with 2-3 pairs of abdominal prolegs absent. Larvae move by extending the front legs of the body as far as possible, then looping the rear of the body up to meet it, hence they are often called measuringworms or inchworms. Many species are serious agricultural and forest pests.

- 06261 *Heliomata cycladata*
06273 *Itame pustularia*
06299 *Itame coortaria*
06322 *Mellilla xanthometata*
06331 *Semiothisa promiscuata*
06344 *Semiothisa signaria*
06386 *Semiothisa ocellinata*
06419 *Enconist disclocaria*
06486 *Tornos scolopacinarius*
06584 *Anacomptodes humaria*
06586 *Anacomptodes defectatia*
06588 *Iridopsis larvaria*
06590 *Anavitrinelia pampinaria*
06597 *Ectropis crepuscularia*
06599 *Epimecis hortaria*
06620 *Melanolophia canadaria*
06621 *Melanolophia signataria*
06640a *Biston betularia cognataria*
06654 *Hypagyrtis unipunctata*
06655 *Hypagyrtis ester*
06667 *Lomographa vestaliata*
06677 *Cabera erythema*
06678 *Cabera variolaria*
06720 *Lylrosis unitaria*
06724 *Euchlaena serrata*
06726 *Euchlaena obtusaria*
06729 *Euchlaena johnsonaria*
06735 *Euchlaena pectinaria*
06737 *Euchlaena tigrinaria*
06739 *Euchlaena irraria*
06740 *Xanthotype urticaria*
06743 *Xanthotype sospeta*
06753 *Pero honestaria*
06754 *Pero hubneraria*
06755 *Pero Morrisornaria*
06763 *Nacophora quernaria*
06796 *Campaea periata*
06798 *Ennomos subsignaria*
06819 *Metanema inatomaria*
06822 *Metarranthis duaria*
06826 *Metananthis hypochraria*
06836 *Anagoga occiduaria*
06840 *Plagodis serinaria*
06841 *Plagodis kuetzingi*
06842 *Plagodis phlogosaria*

06843 Plagodis fervidaria
06844 Plagodis alcoolaria
06885 Besma quercivoraria
06894a Lambdina fervidaria athasaria
06912 Sicya macularia
06941 Eusarca confusaria
06963 Tetracis crocallata
06964 Tetracis cachexiata
06965 Eugonobapta nivosaria
06966 Eutrapola clemataria
06974 Patalene olyzonaria
06982 Prochoerodes transaversata
06987 Antepione thisoaria
07009 Nematocampa limbata
07046a Nemoria bistriaria
07048 Nemoria mimosaria
07058 Synchlora aerata
07071 Chlorochlamys chloroleucaria
07114 Idaea demissaria
07146 Haematopis grataria
07147 Calothysanis amaturaria
07159 Scopula limboundata
07169 Scopula inductata
07196 Eulithis diversilineata
07197 Eulithis gracilis
07292 Hydria prunivorata
07307 Mesoleuca ruficillata
07388 Xanthorhoe ferrugata
07390 Xanthorhoe lacustrata
07394 Epirrhoe alternata
07399 Euphyia unangulata intermediata
07430 Trichodezia albovittata
07440 Eubaphe mendica
07445 Horisme intestinata
07474 Eupithecia miserulata
07645 Heterophleps refusaria
07647 Hererophleps triguttaria
07648 Dyspteris abortivaria

FAMILY MIMALLONIDAE - Sack-bearing Moths

Medium sized , hairy moths with antennae bipectinate in both sexes. Larva build open-ended cases or "sacks" of silk and leaves in which to overwinter.

07662 Cicinnus melsheimeri

FAMILY APATELODIDAE - Apatelodid Moths

Medium sized moths with small translucent "windows" in the forewing. The larvae feed on trees and shrubs.

07663 Apatelodes torrefacta
07665 Olceclostera angelica

FAMILY LASIOCAMPIDAE - Tent Caterpillar and Lappet Moths

Medium-sized moths with hairy bodies that usually exceed hindwing in length. Larvae of some species build communal webs (tents) in trees for protection. Some species are serious pests of forests and shade trees.

07670 Tolype velleda
07687 Phyllodesma americana
07698 Malacosoma disstria
07701 Malacosoma americanum

FAMILY SATURNIIDAE - Giant Silkworm and Royal Moths

This family includes the largest moths in our area. Larvae feed on mostly leaves of trees and shrubs. The giant silkworm moths spin cocoons for pupation while the royal moths generally pupate in the soil.

- 07704 Eacles imperialis
- 07709 Sphingicampa bicolor
- 07715 Dryocampa rubicunda
- 07746 Automeris io
- 07757 Antheraea polyphemus
- 07758 Actias luna
- 07764 Callosamia promethea
- 07767 Hyalophora cecropia

FAMILY SPHINGIDAE - Hawk Moths

Medium to large moths with a very robust bodies. The adult abdomen usually tapers to a sharp point. Wings narrow with forewing sharp-pointed or with an irregular margin. Most larva have a dorsal horn at the tip of the abdomen.

Larvae fed both day and night on many kinds of woody and herbaceous plants and some are serious pests such as the tomato hornworm and tobacco hornworm.

- 07775 Manduca sexta
- 07786 Ceratomia amyntor
- 07787 Ceratomia undulosa
- 07790 Ceratomia hageni
- 07796 Sphinx eremita
- 07802 Sphinx chersis
- 07809 Sphinx kalmiae
- 07821 Smerinthus jamaicensis
- 07822 Smerinthus cerisyi
- 07824 Paonias excaecatus
- 07825 Paonias myops
- 07827 Laothoe juglandis
- 07828 Pachysphinx modesta
- 07855 Hemaris diffinis
- 07859 Eumorpha pandorus
- 07870 Sphecodina abbottii i
- 07871 Deidamia inscripta
- 07873 Amphion floridensis
- 07885 Darapsa myron
- 07894 Hyles lineata

FAMILY NOTODONTIDAE - Prominent Moths

These are medium-sized, stout-bodied moths which are mostly drab-colored brown or gray. The larvae often come in strange shapes. Some are green and look like leaves or other parts of their food plant.

- 07895 Clostera albosigma
- 07896 Clostera inclusa
- 07902 Datana ministra
- 07903 Datana angusii
- 07904 Datana drexelii
- 07906 Datana contracta
- 07907 Datana intergerrima
- 07915 Nadata gibbosa
- 07917 Hyperaeschra georgica
- 07919 Peridea basitriens
- 07920 Peridea angulosa
- 07922 Pheosia rimosa
- 07924 Odontosia elegans
- 07926 Notodonta scitipennis

- 07929 *Nerice bidentata*
- 07930 *Ellida caniplaga*
- 07931 *Gluphisia septentrionis*
- 07936 *Furcula borealis*
- 07937 *Furcula cinerea*
- 07951 *Symmerista albifrons*
- 07957 *Dasylophia anguina*
- 07974 *Furcula cinerea*
- 07975 *Macrurocampa marthesia*
- 07983 *Heterocampa obliqua*
- 07990 *Heterocampa umbrata*
- 07994 *Heterocampa guttivitta*
- 07995 *Heterocampa biundata*
- 07998 *Lochmaeus manteo*
- 07999 *Lochmaeus bilineata*
- 08005 *Schizura ipomoeae*
- 08007 *Schizura unicornis*
- 08017 *Oligocentria lignicolor*
- 08022 *Hyparpax aurora*

FAMILY ARCTIIDAE - Tiger, Lichen and Wasp Moths

Small to medium sized moths with moderately broad wings. The different species may be white, orange, or red with prominent black markings. The larvae are very hairy (woollybear) and feed on low-growing plants and lichens.

- 08045.1 *Crambidia pallida*
- 08089 *Hypoprepia miniata*
- 08090 *Hypoprepia fucosa*
- 08098 *Clemensia albata*
- 08107 *Haploa clymene*
- 08109 *Haploa reversa*
- 08111 *Haploa lecontei*
- 08112 *Haploa confusa*
- 08121 *Holomelina aurantiaca*
- 08129 *Pyrrharctia isabella*
- 08131 *Estigmene acrea*
- 08133 *Spilosoma latipennis*
- 08134 *Spilosoma congrua*
- 08137 *Spilosoma virginica*
- 08140 *Hyphantria cunea*
- 08157 *Phragmatobia lineata*
- 08169 *Apantesis phalerata*
- 08197 *Grammia virgo*
- 08199 *Grammia arge*
- 08203 *Halysidota tessellaris*
- 08211 *Lophocampa caryae*
- 08214 *Lophocampa maculata*
- 08230 *Cycnia tenera*
- 08231 *Cycnia oregonensis*
- 08238 *Euchaetes egle*
- 08262 *Ctenucha virginica*
- 08267 *Cisseps fulvicollis*

FAMILY LYMANTRIDAE - Tussock Moths

These are medium-sized moths and the females are usually larger than the males. The larvae are generally very hairy, usually with two anterior and two or three posterior long hair tufts. The larvae feed principally on woody plants and some are very destructive such as the gypsy moth.

- 08296 *Dasychira basiflava*
- 08314 *Orgyia definita*

08316 *Orgyia leucostigma*
08318 *Lymantria dispar*

FAMILY NOCTUIDAE - Owlet or Noctuid Moths

This is the largest family in the Order Lepidoptera. Some of these moths are brightly colored, but most are gray to brown with complex patterns of lines and spots. These are small to large moths with stout, hairy bodies. Larvae of noctuid species feed on foliage of a wide variety of plants, dead leaves, lichens, and fungi. Many are serious pests of trees and cultivated plants. These moths pupate in cells in the soil, in cavities of food plants, or in silk cocoons.

08322 *Idia americalis*
08323 *Idia aemula*
08334 *Idia lubricalis*
08338 *Phalaenophana pyramusalis*
08351 *Zanclognatha cruralis*
08353 *Zanclognatha ochreipennis*
08355 *Chytolita morbidalis*
08357 *Macrochilo absoritalis*
08364 *Phalaenostola larentloides*
08370 *Bleptina caradrinalis*
08393 *Lascoria ambigualis*
08397 *Palthis angulalis*
08398 *Palthis asopialis*
08404 *Rivula propinqualis*
08441 *Bomolocha manalis*
08442 *Bomolocha baltimoralis*
08443 *Bomolocha bijugalis*
08445 *Bomolocha abalienalis*
08465 *Plathypena scabra*
08479 *Spargaloma sexpunctata*
08481 *Phytometra rhodarialis*
08490 *Pangrapta decoralis*
08491 *Ledaea perditalis*
08493 *Isogona tenuis*
08499 *Metalectra discalis*
08514 *Scolecocampa liburna*
08534 *Plusiodonta compressipalpis*
08536 *Calyptera canadensis*
08555 *Scoliopteryx libatrix*
08587 *Panopoda rufimargo*
08588 *Panopoda carneicosta*
08689 *Zale lunata*
08692 *Zale galbanata*
08695 *Zale undularis*
08716 *Zale unilineata*
08719 *Eupathenos nubilis*
08727 *Parallelia bistriaris*
08738 *Caenurgina crassiuscula*
08739 *Caenurgina erechtea*
08769 *Spilosoma lunilinea*
08770 *Catocala innubens*
08771 *Catocala piatrix*
08780 *Catocala robinsoni*
08784 *Catocala obscura*
08788 *Catocala reecta*
08788.1 *Catocala luctuosa*
08792 *Catocala vidua*
08795 *Catocala palaeogama*
08796 *Catocala nebulosa*
08798 *Catocala neogama*
08801 *Catocala ilia*

08802 *Catocala cerogama*
08803 *Catocala relicta*
08805 *Catocala unijuga*
08806 *Catocala parta*
08817 *Catocala briseis*
08832 *Catocala cara*
08834 *Catocala amatrix*
08840 *Catocala illecta*
08857 *Catocala ultronia*
08858 *Catocala crataegi*
08863 *Catocala mira*
08864 *Catocala grynea*
08874 *Catocala minuta*
08877 *Catocala connubialis*
08878 *Catocala amica*
08878.1 *Catocala lineella*
08881 *Abrostola urentis*
08897 *Diachrysia balluca*
08898 *Allagrapha aerea*
08905 *Eosphoropteryx thyatyroides*
08907 *Autographa biloba*
08908 *Autographa precatonis*
08924 *Anagrapha falcifera*
08955 *Marathyssa inficita*
08957 *Paectes oculatrix*
08970 *Baileya ophthalmica*
08971 *Baileya dormitans*
08972 *Baileya levitans*
08973 *Baileya australis*
08983 *Meganola minuscula*
09044 *Thioptera nigrofimbria*
09047 *Lithacodia muscosa*
09053 *Pseudostrotia cameola*
09055.1 *Maliattha synochitis*
09055.3 *Anterastria teratophora*
09062 *Cerma cerintha*
09065 *Leuconycta diphteroides*
09066 *Leuconycta lepidula*
09090 *Tatachidia candefacta*
09127 *Spragueia leo*
09185 *Colocasia propinqualis*
09189 *Charadra deridens*
09193 *Raphia frater*
09199 *Acronicta rubricoma*
09200 *Acronicta americana*
09203 *Acronicta dactylina*
09205 *Acronicta lepusculina*
09221 *Acronicta funeralis*
09227 *Acronicta laetifica*
09229 *Acronicta hasta*
09236 *Acronicta morula*
09237 *Acronicta interrupta*
09238 *Acronicta lobeliae*
09243 *Acronicta ovata*
09244 *Acronicta modica*
09245 *Acronicta haesitata*
09251 *Acronicta retardat*
09261 *Acronicta impressa*
09264 *Acronicta longa*
09272 *Acronicta oblinita*
09280 *Simyra henrici*
09285 *Polygrammate hebraicum*

09286 *Harrisimemna trisignata*
09299 *Eudryas unio*
09301 *Eudryas grata*
09328 *Apamea nigror*
09329 *Apamea cariosa*
09344 *Apamea plutonia*
09364 *Apamea sordens*
09367 *Apamea dubitans*
09372 *Apamea lutosa*
09373 *Agroperina helva*
09385.2 *Apamea ophiogramma*
09393 *Luperina stipata*
09406 *Oligia fractilinea*
09410 *Oligia crytora*
09427 *Meropleon diversicolor*
09435 *Spartiniphaga inops*
09454 *Amphipoea velata*
09457 *Amphipoea americana*
09471 *Papaipema arctivorens*
09483 *Papaipema inquaesita*
09484 *Papaipema rutila*
09485 *Papaipema baptisiae*
09486 *Papaipema birdii*
09496 *Papaipema nebris*
09503 *Papaipema rigida*
09520 *Achatodes zea*
09525 *Bellura obliqua*
09545 *Euplexia benesimillis*
09546 *Philogophora iris*
09550 *Enargia infumata*
09578 *Hyppa xylinoides*
09582 *Nedra ramosula*
09631 *Lithophane grotei*
09637 *Magusa orbifera*
09638 *Amphipyra pyramidoides*
09640 *Amphipyra glabella*
09647 *Athetis miranda*
09661 *Crambodes talidiformis*
09663 *Balsa tristrigella*
09664 *Balsa labecula*
09666 *Spodoptera frugiperda*
09669 *Spodoptera ornithogalli*
09684 *Elaphria grata*
09688 *Galgula partita*
09689 *Perigea xanthioides*
09690 *Condica videns*
09696 *Condica vecors*
09720 *Ogdoconta cinereola*
09725 *Stiriodes obtusa*
09754 *Plagiomimicus pityochromus*
09766 *Cirrhophanus triangulifer*
09781 *Basilodes pepita*
09815 *Cosmia calami*
09818 *Amolita fessa*
09878 *Lithomola germana*
09886 *Lithophane patefacta*
09887 *Lithophane bethunei*
09889 *Lithophane petulca*
09950 *Chaetaglaea sericea*
09952 *Eucirroedia pampina*
09957 *Sunira bicolorago*
09961 *Anathix ralla*

09963	Anathix aggressa	
10021	Copivaleria grotei	11065 Rhodoecia aurantiago
10033	Catabena lineolata	11068 Helicoverpa zea
10099	Oncocnemis saundersiana	11128 Schinia arcigera
10200	Cucullia asteroides	11135 Schinia rivulosa
10202	Cucullia convexipennis	11149 Schinia trifascia
10288	Polia detracta	11029 Abagrotis alternata
10292	Melanchra adjuncta	
10293	Melanchra picta	
10299	Lacanobia subjuncta	
10301	Spiramater lutra	
10304	Trichordestra legitima	
10368	Lacinipolia meditata	
10397	Lacinipolia renigera	
10405	Lacinipolia lorea	
10414	Lacinipolia implicata	
10431	Faronta diffusa	
10438	Pseudaletia unipuncta	
10444	Leucania phragmatidicola	
10446.1	Leucania lapidaria	
10447	Leucania commoides	
10461	Leucania ursula	
10462	Leucania pseudargyria	
10495	Orthosia hibisci	
10501	Crocigrapha normani	
10518	Achatia distincta	
10520	Morrisonia evicta	
10521	Morrisonia confusa	
10521.1	Morrisonia latex	
10524	Nephelodes minians	
10567	Ulolonche culea	
10578	Pseudorthodes vecors	
10585	Orthodes crenulata	
10587	Orthodes cynica	
10589.1	Orthodes goodelli	
10627	Tricholita signata	
10648	Agrotis gladiaria	
10651	Agrotis venerabilis	
10658	Agrotis stigmosa	
10663	Agrotis epsilon	
10670	Feltia jaculifera	
10674	Feltia subgothica	
10676	Feltia herilis	
10698.2	Trichosilia geniculata	
10705	Euxoa messoria	
10805	Euxoa tessellata	
10838	Euxoa detersa	
10851	Euxoa redimicula	
10870	Loxagrotis acclivis	
10891	Ochropleura plecta	
10903	Euagrotis illapsa	
10915	Peridroma saucia	
10925.1	Noctua pronuba	
10929	Eurois occulata	
10942.1	Xestia dolosa	
10943	Xestia normaniana	
10944	Xestia smithii	
10950	Xestia bicarnea	
10955	Xestia badinodis	
10998	Choephora fungorum	
11000	Anaplectoides prasina	
11006	Protolampra bruneicollis	